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ABSTRACT

Natural resource and poverty relationships are regionally specific and are associated with particular segments of the nation's population, but have no overall direct causal tie. Although employment in natural-resource-based industries in rural areas accounts for only 16% of all rural employment nationally, these industries continue to make important contributions to local economies in particular regions. While the economy in large parts of rural America is unaffected by natural-resource development and more dependent on general economic trends, in certain regions the viability of rural communities and their residents is greatly affected by natural-resource industry. Agricultural laborers, resource-linked Southern Appalachians, rural Blacks of the southern Coastal Plain, and Great Plains and Western Indians are highly poverty-prone nonmetropolitan populations. Programs and policies to address resource-related poverty can't be sweeping but must be tailored to individual settings. To improve incomes through natural resources requires not only development of the resources, but a successful combination of all of the other factors that make a resource economic: capital, labor, technology, management, and markets. (PM)

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Rural Development, Poverty, and Natural Resources
Workshop Paper Series

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Natural Resources and Rural Poverty: An Overview

Irma T. Elo and Calvin L. Beale

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1616 P Street, N.W.
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1984

Errata for Natural Resources and Rural Poverty: An Overview by Irma Elo and Calvin Beale. The page numbers were inadvertently omitted from the Table of Contents. Please replace with this sheet.

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Preface

Nearly 13 million persons or 18 percent of the population in the nonmetropolitan areas of the United States live in poverty. The causes of that poverty are numerous and complex; the consequences are of major significance not just to the lives of those affected, but to the communities in which they live and to society as a whole because of forgone social products and services.

This paper explores the many facets of poverty in rural America--geography, demography, and ethnicity and its economic and social attributes. It is a capstone to work initiated at Resources for the Future in late 1982 with generous support from the Ford Foundation. It draws upon, updates, and extends several papers presented at a workshop of leading scholars and development leaders held in mid-1983 and subsequently made available from RFF. The papers are listed in the appendix in the back of this volume.

As suggested in this overview and the series of workshop papers that preceded it, much additional analysis--cross-sectional, longitudinal, and interdisciplinary--will be required to establish conclusively the role of natural resources in rural development and the relationship of resource, economic, institutional, social, technological, and policy variables to the incidence of rural poverty. It also is clear that the data base pertaining to natural resources, particularly ownership, use, and economic characteristics, will need to be improved to permit rigorous analysis of the linkages between rural development, poverty, and natural resources. We hope that this exploratory work at RFF will be a source of information and encouragement for researchers, policy analysts, and development leaders concerned with the causes, consequences, and alleviation of rural poverty.

National Center for Food and Agricultural Policy
Resources for the Future

Kenneth R. Farrell
Director

The Rural Setting

In recent years rural America has been transformed from a place characterized by an agricultural economy and general social and economic disadvantage to the present setting in which agriculture plays a diminished role in the affairs of a heterogenous rural society. Rural America has been modernized and made an integral part of the national economy by economic diversification, advances in communication and transportation, investment in the infrastructure, and improvements in public services. These trends are shown by changes in population and economic structure of rural communities (see also Deavers and Brown, and Castle and Goldstein papers).[1]

CHANGES IN POPULATION

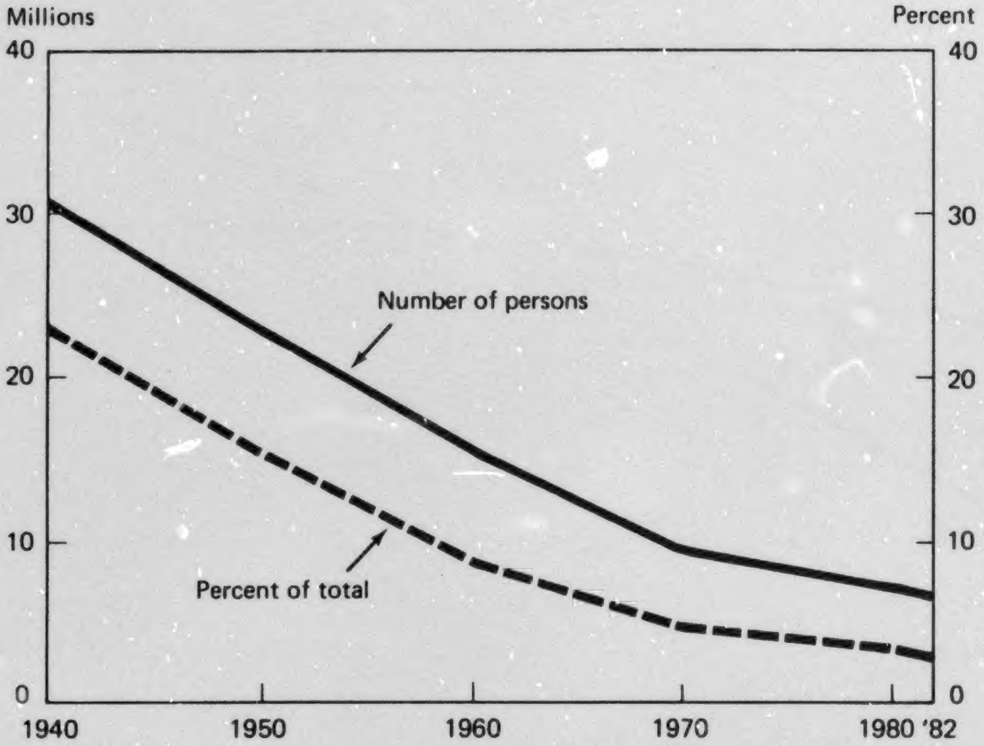
During the last four decades, rural America first experienced an exodus of its people to the nation's cities followed by an unexpected reversal of this decades-long trend in the 1970s. The modern outmigration from rural areas began in the 1940s when large numbers of farm residents moved away. Major causes of this trend included mechanization of agriculture, rapid decline of tenant farming in the South, pressures toward farm consolidation to obtain high-volume production, and growth of more remunerative employment opportunities in urban areas.

The loss of farm people was most pronounced between 1940 and 1960 when the number of farm residents declined by half from 30.5 million people to about 15 million. This decline has continued to the present day, although the absolute loss began to diminish in the 1960s as the population base dwindled. By 1970, farm people numbered less than a third of their total just thirty years earlier and by 1982 only 3 percent of the U.S. population (6.9 million people) resided on farms (see figure 1-1).

Although, between 1940 and 1970, the reductions in farm residents led to a decline in total rural population, these reductions were not uniform across the country. Rural areas where farming had not dominated activities, and where nonfarm employment opportunities were available, actually grew in population--in the Northeast, for example, the rural population grew by 18 percent between 1950 and 1970 (comparable numbers are not available for 1940).[2] But in other parts of the country, the loss of farm people led to extensive declines in total rural population. This was especially true in hundreds of counties in the Great Plains, the Corn Belt, and southern Coastal Plain, where some areas lost half of their population in thirty years.[3] Overall, between 1950 and 1970, the total rural population declined by about 600,000 residents (or 1 percent) in contrast to the nation's urban population, which grew by 52.5 million people or by 54 percent during the same period (see figure 1-2).

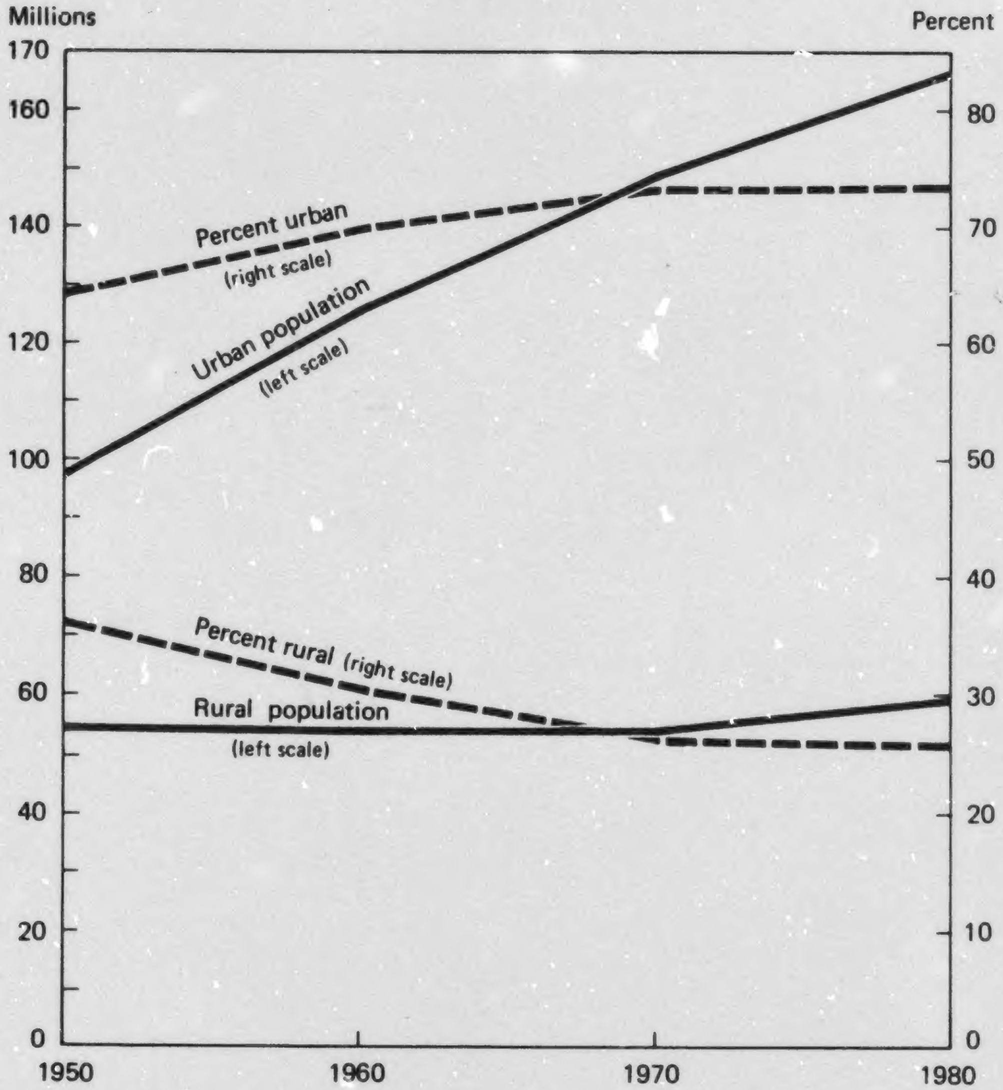
However, in the early 1970s, it became evident that the overall movement of rural residents either had slowed dramatically or ended. Rural areas began to experience a revival of population growth and in fact, between 1970 and 1980, rural population grew by 5.6 million people or 10

Figure 1-1. U.S. Farm Population, 1940-1980



Source: Vera J. Banks and Karen M. Mills, Farm Population of the United States: 1982, U.S. Department of Agriculture, Farm Population Series, P-27, no. 56 (1983), p. 1.

Figure 1-2. U.S. Urban and Rural Population, 1950-1980



Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population, Characteristics of the Population, Number of Inhabitants, table 18; and 1980 Census of Population, General Social and Economic Characteristics, U.S. Summary, table 72.

percent (see figure 1-2). Another indicator of the reversal of population growth in small towns and rural areas is the fact that the nonmetropolitan population grew more rapidly (15.8 percent) from 1970 to 1980 than the population in metropolitan areas (9.8 percent) (see table 1-1). In fact, the 1980 census data imply that approximately 3.5 to 4.0 million more people moved into nonmetropolitan areas than out of them during the 1970s. This was in sharp contrast to the decade of the 1960s when nonmetropolitan America experienced a net outmigration of 2.8 million people.[4]

It is also important to note that the growth of rural population in the 1970s was not limited to areas that were semi-urban in character or influenced by nearby metropolitan cities, but also occurred in remote areas and in the open country. Nor was it uniform across the country. While more than 100 nonmetropolitan counties, located principally in the West, grew by more than 50 percent during the decade, some 450 others--predominantly agricultural--continued to experience a decline in population.

The causes of the turnaround in rural population decline in the 1970s were varied. First, by the late 1960s, the adoption of labor-displacing mechanical technology in agriculture--a major source of the technological "revolution" in the preceding two decades--had slowed appreciably. Relatively greater emphasis was placed on chemical and biological technologies to sustain or enhance productivity. Second, income from farming for those operators still in agriculture had improved substantially by the early 1970s relative to that of the nonfarm population. To some observers, it appeared that by the mid 1970s, agricultural wages and incomes were approaching an approximate parity with those in nonfarm sectors.[5] Thus, there was less pressure from within the sector "pushing"

Table 1-1. Population of Census Regions by Metropolitan and Nonmetropolitan Status, 1970 and 1980 (absolute numbers in thousands)

Area	Total			Metropolitan[a]			Nonmetropolitan		
	1970	1980	% Change	1970	1980	% Change	1970	1980	% Change
U.S.	203,302	226,505	11.4	148,880	163,503	9.8	54,422	63,002	15.8
Northeast	49,061	49,137	0.2	42,480	41,716	-1.8	6,580	7,421	12.8
North central	56,590	58,854	4.0	39,107	40,033	2.4	17,483	18,821	7.7
South	62,813	75,349	20.0	39,353	47,709	21.2	23,460	27,641	17.8
West	34,838	43,165	23.9	27,939	34,046	21.9	6,899	9,119	32.2

Source: 1970 and 1980 Censuses of Population. Prepared by the Economic Research Service of the U.S. Department of Agriculture.

[a] Metropolitan status as of 1974.

operators and labor to leave agriculture. Third, the massive outmigration of the preceding three decades had so reduced the number of persons remaining in agriculture as to limit further exodus in absolute if not relative terms. Fourth, the diversification of the rural economy with the concomitant growth of nonagricultural wage and salary jobs enabled many residents to find employment in rural areas who previously might have been forced to leave in search of jobs. Fifth, the growth of employment opportunities and modernization of rural life attracted migrants from urban areas and enabled many citizens to realize their preferences for a more rural life-style. And finally, there has been a large-scale movement of retired persons to rural and small town communities, often attracted by natural-resource amenities. A lower cost of living, especially in terms of housing and property taxes, also contributed to this trend.

CHANGES IN THE ECONOMIC STRUCTURE OF RURAL AREAS

Just as the changes in the agricultural sector during the past four decades resulted in an exodus of rural residents to the cities, the changes also led to significant alterations in the economic base of rural areas. Until the 1940s, agriculture played a dominant role in employment of rural residents. The goal of owning land and being independent on it was, after all, the driving motivation for many immigrants to America from Colonial times until the period just before World War I. By that time, the land had been essentially occupied and the mechanization of farming associated with the tractor had begun. In 1929, at the beginning of the Depression, when the modern data series starts, 10.5 million people, or 22 percent of the total national labor force, were engaged directly in the production phases of agriculture.[6] Employment declines during the Depression were comparatively modest, as subsistence farming became a refuge occupation in some regions. After 1940, however, farm employment underwent almost a free fall as farms were consolidated, some land was abandoned, and many farmers sought off-farm work that became their primary activity. By 1970, 64 percent of the 1940 base of farm employment had vanished, with only 3.5 million workers, or 4.4 percent of national employment, still solely or principally in this sector.[7]

Then, abruptly, the drop in farm employment nearly ceased. Over the next ten years, the decline was to 3.4 million with no growth in secondary work.[8] Within the classification, however, the number of farm operators and family workers continued to decrease, while hired farm workers and those in other agricultural occupations rose (such as mechanics, bookkeepers, veterinary, and landscaping workers). By 1980, however, only 2.8 percent of the total U.S. workforce, 8.5 percent of the workforce in rural America, and 7.2 percent in nonmetropolitan areas could be classified as agricultural workers even by the most inclusive definition (wage and salary, self-employed, and unpaid family).

In 1980, manufacturing was the leading source of employment in rural America, engaging one-fourth of the rural work force. Manufacturing was followed by trade and professional services, each employing one-sixth of the work force (see table 1-2).

Although these industry groups provide a larger proportion of employment in rural areas today than during the previous decades, the change has been a gradual, not a sudden one. For example, during the two decades from 1950 to 1970, rural employment in manufacturing grew by approximately 58 percent, wholesale and retail trade by about 48 percent,

Table 1-2. Employment by Industry of Rural Residents, 1950, 1960, 1970, and 1980
(absolute numbers in thousands)

	1950		1960		1970		1980	
	Number	% of total	Number	% of total	Number	% of total	Number	% of total
Agriculture, forestry, and fisheries	6,565	36.8	3,822	22.2	2,249	12.0	2,107	8.8
Mining	590	3.3	356	2.1	306	1.6	485	2.0
Construction	1,124	6.3	1,203	7.0	1,465	7.8	1,828	7.7
Manufacturing	3,272	18.3	4,165	24.1	5,212	27.9	6,062	25.4
Wholesale and retail trade	2,122	11.9	2,505	14.5	3,141	16.8	4,255	17.8
FIRE[a]	226	1.3	351	2.0	520	2.8	914	3.8
Government	488	2.7	614	3.6	781	4.2	1,035	4.3
Professional and related services[b]	1,043	5.9	1,578	9.1	2,648	14.2	4,068	17.0
Transportation, communication, and other public utilities	899	5.0	911	5.3	1,076	5.8	1,598	6.7
Other	1,505	8.4	1,744	10.1	1,282	6.9	1,533	6.4
Total[c]	17,834	100.0	17,249	100.0	18,680	100.0	23,885	100.0

Source: U.S. Department of Commerce, Bureau of the Census, Census of Population, 1950, 1960, 1970, and 1980.

[a] Finance, Insurance, and Real Estate.

[b] Business and Repair Services, Personal Services, Entertainment and Recreation, and Industry not reported.

[c] Numbers and percentages may not add up due to rounding.

and professional and related services by 160 percent (see table 1-2). However, the loss of employment in agriculture during the same time period was so extensive that the other, growing sectors of the economy were unable to absorb all residents being displaced from farming, in addition to the natural increase of the population. Thus, the heavy outmigration from rural areas occurred.

The above discussion clearly indicates that during the last four decades the economic base in rural areas has been greatly diversified. And, although agriculture continues to be an important source of employment and income in some rural areas, the majority of rural counties are no longer dominated by agriculture and must depend on nonagricultural jobs for employment.

It is important to note, however, that while agriculture and other natural-resource-based industries have declined in importance in the overall rural economy, in particular locations these industries continue to be the base of much of the area's economic activity, and large numbers of rural residents continue to be dependent on them for employment and income.

THE ROLE OF NATURAL RESOURCES IN THE RURAL ECONOMY

The combined employment in agriculture, fishing, mining, forestry, logging, wood products, furniture, paper, and food processing in 1980 was 16 percent of all rural and nonmetropolitan employment.[9] The comparable figure in 1970 was 19 percent. These natural-resource-industry categories are intended to reflect extractive production plus processing work largely done at or near the locality of raw material production. They include certain amounts of furniture production that are not closely linked to local timber production, or of food processing, such as bakery goods, that are more closely tied to location of people than raw materials. On the other hand, the categories exclude mineral smelting or refining, some of which is done near production sites and is directly dependent on continued local mining activity. For the purpose of statistical analysis in this overview, the categories are not perfect, but on the whole, they are conceptually adequate for capturing natural-resource dependence.

We have not attempted to estimate jobs in the manufacture of natural-resource-industry equipment and supplies or in trade and services related to such industry. Attempts to do this for agriculture (for example, Groenewegen and Clayton), sink into logical quagmires. They require estimates of person-equivalent workers (for workers in industries serving more than farming), and the categories become duplicative with other industries, rather than mutually exclusive.[10] (For instance, a dealer selling phosphatic fertilizer could be treated as part of both agriculture and mining). In our analysis, we have elected to identify only those lines of natural-resource work identifiable from the intermediate industry detail of the census. Naturally, they also have a multiplier effect not estimated here.

Separate data for nonmetropolitan natural-resource employment for men and for women make clear the major difference that exists between them in direct dependence on this work. In 1980, 22 percent of employed nonmetropolitan men were engaged in natural-resource work, compared with just 7 percent of women. And, therefore, when mines or mills fail or crops do not pay, the effect is felt immediately by more of the male workers than female workers, because trends in the historically female trade, service, and government jobs are less sensitive to economic downturns.

Combined Role of Agriculture, Mining and Forest Industries

To assess the extent of the rural and small town economy dominated by the three traditional extractive industries (agriculture, mining, and forest industries), we identified those nonmetropolitan counties in which 20 percent or more of employment in 1980 was in agriculture and food processing; fishing; mining; and forestry, logging, wood products, and pulp and paper mills. This includes only direct employment in production and not that in those manufacturing operations that are typically suppliers of equipment or services, or in the transportation or further processing or selling of goods.

Such counties numbered 1,051 in all, or 44 percent of all nonmetropolitan counties, and contained 15.3 million persons, or 27 percent of the total nonmetropolitan population (table 1-3). Some three-fifths of the people in natural-resource-dominated counties lived in counties where no one resource activity was dominant, but where the combined employment in all types exceeded 20 percent. Somewhat more than a fifth of the population (3.2 million) were in agricultural counties; a sixth (1.9 million) were in mining counties, and the remaining fifteenth (1.0 million) in forest products counties.

In 1980, the region most thoroughly dominated by natural-resource employment was the Great Plains, where from north to south the great majority of the nonmetropolitan counties were primarily agricultural, or,

Table 1-3. Characteristics of Nonmetropolitan Counties, 1980

(absolute numbers on thousands)

Characteristic	Total nonmetro	Non-natural-resource counties	All natural-resource counties	Agriculture[a]	Mining[b]	Forestry[c]	Combination[d]
Population							
Total	57,115	41,763	15,352	3,239	1,904	1,040	9,169
White	50,357	36,637	13,720	3,050	1,776	939	7,955
Black	5,017	3,973	1,043	62	51	72	858
Indian[e]	750	540	210	45	26	22	118
Hispanic[f]	1,811	986	825	176	143	12	492
Percent high school graduates	59.0	59.7	57.0	60.6	50.3	60.9	56.6
Female labor force participation rate	45.1	46.4	41.7	41.2	33.5	43.7	43.3
Percent persons 16-64 with work disability	10.1	9.9	10.6	8.6	13.4	11.7	10.6
Percent unemployed persons in labor force, 1979[g]	18.2	18.7	16.9	11.9	19.7	22.0	17.6
Median household income, 1979 ($$)	14,040	14,242	13,428	12,617	14,957	14,522	13,350
Percent persons in poverty, 1979							
Total	15.4	14.9	17.0	17.7	17.1	14.4	17.0
White	12.4	12.0	14.5	16.0	16.1	12.2	13.8
Black	39.0	38.1	42.5	55.6	32.9	40.4	42.4
Indian[e]	34.0	35.0	31.5	40.1	29.0	22.7	30.7
Hispanic[f]	27.3	26.0	28.8	37.7	20.8	22.0	28.0
Percent with income below 75 percent of poverty level	10.1	9.7	11.2	11.8	11.9	9.0	11.1

Source: Special tabulations from the 1980 Census of Population.

[a] All nonmetropolitan counties in which at least 20 percent of all employment in 1980 was in agriculture.

[b] All nonmetropolitan counties in which at least 20 percent of all employment in 1980 was in mining.

[c] All nonmetropolitan counties in which at least 20 percent of all employment in 1980 was in forestry, logging, and wood products and pulp and paper mills.

[d] All nonmetropolitan counties in which no one resource activity was dominant, but in which at least 20 percent of all employment combined was in agriculture and food processing; mining; fishing; forestry, logging and wood products, and pulp and paper mills.

[e] Includes Alaskan Natives.

[f] The Hispanic population may be of any race. Nearly three-fifths of all nonmetro Hispanics reported themselves as White in the 1980 Census. Most of the remainder were classed as "other races," but small numbers were Black or Indian. Thus, the data shown by race are not mutually exclusive of data for Hispanics.

[g] That is, percentage of persons in labor force who experienced some period of unemployment during the year.

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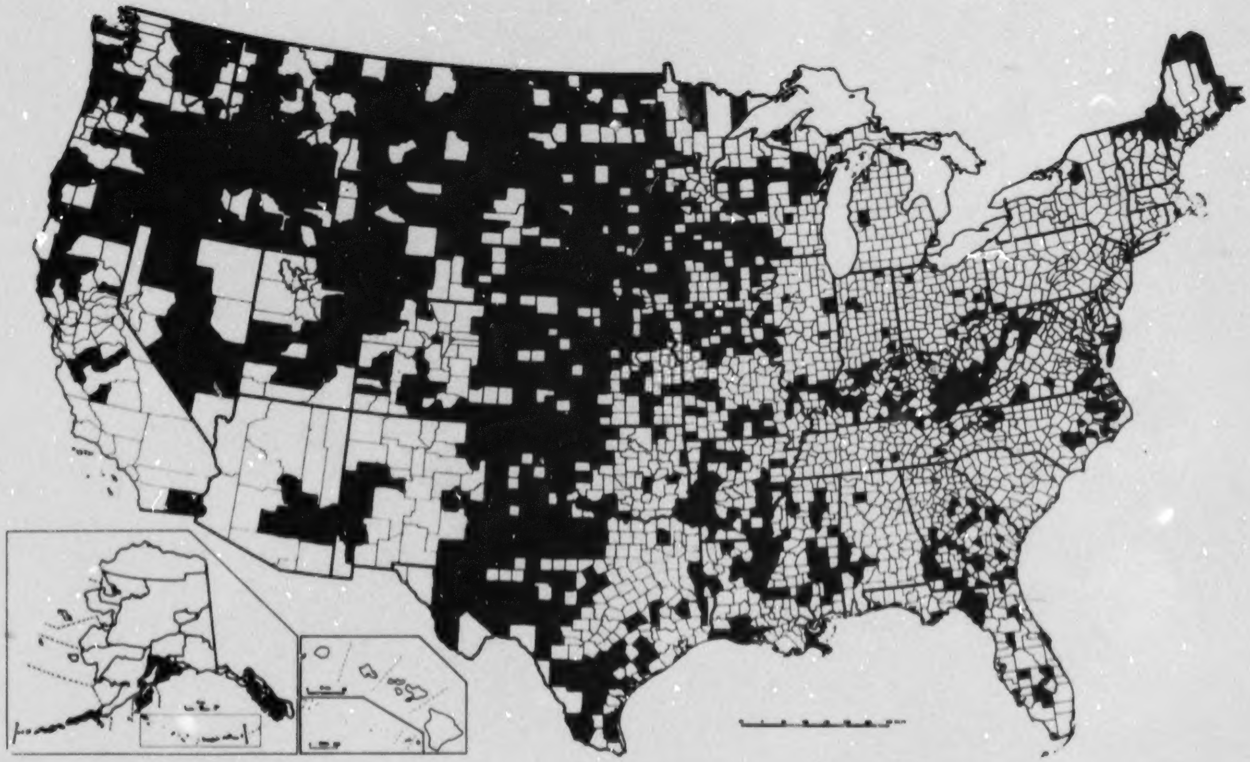
to a lesser extent, mining areas, or a combination of the two (see figure 1-3). The northern half of the West also was heavily tied to natural resource work, with timber industries added to the mix.

The eastern third of the country showed few counties still heavily reliant on the production phases of agriculture, but did have more combination counties when timber industries and food processing are added in. A compact area of twenty-eight counties in Kentucky, Virginia, and West Virginia was still heavily dependent on coal mining. What may seem surprising are the large expanses of territory in the Carolinas, Alabama, and Tennessee, in the Northeast, and in the eastern states of the Midwest where few or even no nonmetropolitan counties were resource dominated in 1980. These areas have acquired such diverse economies of manufacturing, trade, and services that they are no longer primarily resource based, even though many counties within them still have a productive agriculture.

The counties with a combination of natural-resource employment that exceeds 20 percent of all jobs, but with no one such industry dominant, were rather scattered without any large groupings (see figure 1-4). There were a number in the Northwest that combined timber work with agriculture. In the southern Great Plains, the usual combination was farming, along with oil and gas production. In the Corn Belt, food processing added to agricultural employment. A number of counties in the lower South had timber and agriculture. The pattern varied. The combination counties averaged 19,000 population each, much larger than the agriculturally dominated counties, but not as large as those focussed on mining or timber. The many counties with more than one natural-resource activity, make it

Figure 1-3. Nonmetropolitan Natural-Resource Counties, 1980



Note: Includes all nonmetropolitan counties in which at least 20 percent of all employment in 1980 was in agriculture, food processing, mining, fishing, forestry and logging, and wood products and pulp and paper mills.

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population.

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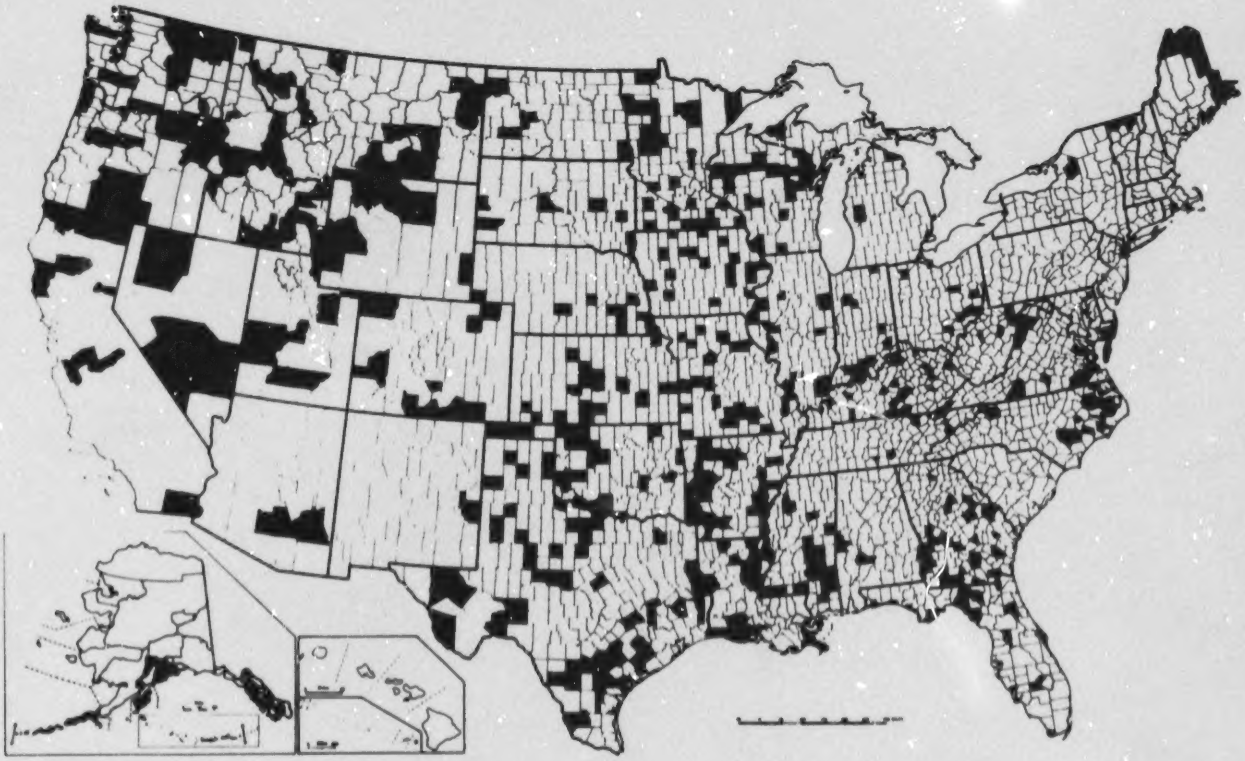
Figure 1-4. Nonmetropolitan Combination Natural-Resource Counties, 1980



Note: Includes all nonmetropolitan counties in which no one resource activity was dominant but in which at least 20 percent of all employment combined was in agriculture, food processing, fishing, mining, forestry, and logging, and wood products and paper mills.

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population.

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clear that natural-resource counties cannot be adequately identified just on the basis of dominance by individual industries.

To emphasize an earlier point, it should be noted that many additional counties could have been identified as having more than 20 percent of their male employment in natural-resource industries. No attempt has been made to identify these counties, but they would probably have numbered several hundred, with several million population. In nonmetropolitan America, women numbered only about 17 percent of all natural-resource industry workers, but comprised 45 percent of the rest of the labor force in 1980.

Agriculture

As discussed earlier, only 8.5 percent of employed rural people worked directly in agriculture in 1980. By counties, the percentage so employed ranged all the way from zero (in a few Alaskan areas, for example) to a high of 70 percent in one county of North Dakota. There were only 19 counties left in the whole country where at least half of all employed people worked solely or primarily in agriculture compared to thirty years ago when there were close to 600 such counties. All told in 1980, some 442 nonmetropolitan counties containing 3.2 million people had 20 percent or more of their work force in agriculture, a level that typically denotes a dominant industry. They averaged only 7,300 population per county, because agriculture is seldom dominant in partly urbanized or densely settled rural areas. Farm counties were concentrated in the Great Plains, and the western Corn Belt, where three-fourths of the population in agriculturally dominated nonmetropolitan counties lived (see table 1-4 and figure 1-5).

Table 1-4. Characteristics of Nonmetropolitan Agricultural Counties, 1980[a] (absolute numbers in thousands)

Characteristic	Total	Region 1	Region 2	Region 3	Region 4	Region 5
Population						
Total	3,239	1,247	1,224	432	132	204
White	3,050	1,238	1,178	358	123	153
Black	62	2	1	12	0.2	47
Indian[b]	45	4	38	2	1	0.3
Hispanic[c]	178	4	13	143	11	8
Percent high school graduates	60.6	62.3	64.3	50.1	68.6	41.7
Female labor force participation rate	41.2	42.5	40.5	39.9	42.3	38.9
Percent persons 16-64 with work disability	8.6	8.5	7.8	9.0	9.5	12.3
Percent unemployed persons in labor force, 1979[d]	11.9	13.4	7.7	15.9	15.8	18.4
Median household income, 1979	$12,617	$13,323	$12,372	$12,366	$13,297	$10,449
Percent persons in poverty, 1979						
Total	17.7	14.7	17.2	22.6	15.9	28.9
White	16.0	14.5	15.9	19.3	14.9	21.1
Black	55.6	e	e	48.4	e	58.1
Indian[b]	40.1	e	42.5	e	e	e
Hispanic[c]	37.7	e	28.7	39.4	27.4	42.9
Percent with income below 75 percent of poverty level	11.8	9.5	11.7	15.2	10.3	20.0

Note: Region 1: Iowa, Minnesota, Wisconsin, Missouri, Illinois. Region 2: North Dakota, South Dakota, Montana, Wyoming, Colorado, Nebraska, Kansas, and Oklahoma. Region 3: California, Arizona, New Mexico, and Texas. Region 4: Oregon, Washington, Idaho, and Utah. Region 5: Census South, except Texas and Oklahoma.

Source: Special tabulations from the 1980 Census of Population.

[a] All nonmetropolitan counties in which at least 20 percent of all employment in 1980 was in agriculture.

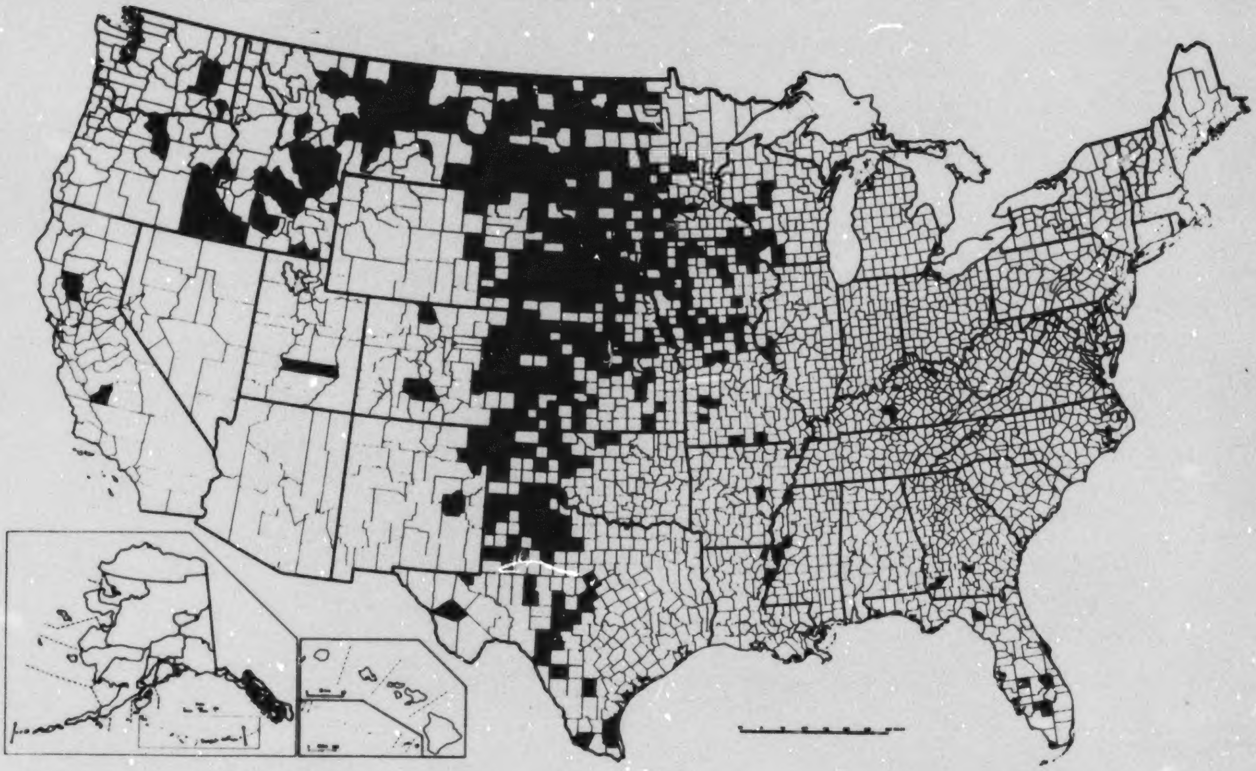
[b] Includes Alaskan natives.

[c] The Hispanic population may be any race. Nearly three-fifths of all nonmetropolitan Hispanics reported themselves as White in the 1980 census. Most of the remainder were classed as "other races," but small numbers were Black or Indian. Thus, the data shown by race are not mutually exclusive of data for Hispanics.

[d] That is, percentage of persons in labor force who experienced some period of unemployment during the year.

[e] For base population less than 5,000, poverty rate is not shown.

Figure 1-5. Nonmetropolitan Agricultural Counties, 1980



Note: Includes all nonmetropolitan counties in which at least 20 percent of all employment was in agriculture and food processing.

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population.

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As late as 1952, half of all farm people in the nation lived in the South. It is a measure of the diversification of the southern economy and of the extent of withdrawal of workers from farming that in 1980 only 0.2 million people lived in southern counties (outside of the Plains states of Oklahoma and Texas) that had 20 percent or more of their employment in agriculture and food processing.

Most of the farming counties are not among the top agricultural counties of the nation but rather lack other sources of employment. Their prosperity rises or falls with the interaction of agricultural costs, output, and prices.

As with other traditional extractive industries, the importance of farm employment in the rural economy is understated if one considers only its overall incidence. Farming is still an overwhelmingly male occupation, and is likely to remain so, even though the number of female farmers is growing. Among rural U.S. males 11.7 percent were in agriculture in 1980. This is a closer representation of the percentage of all rural households that have some employment dependence on farming than is the figure on the percentage of all rural workers who are in the industry.

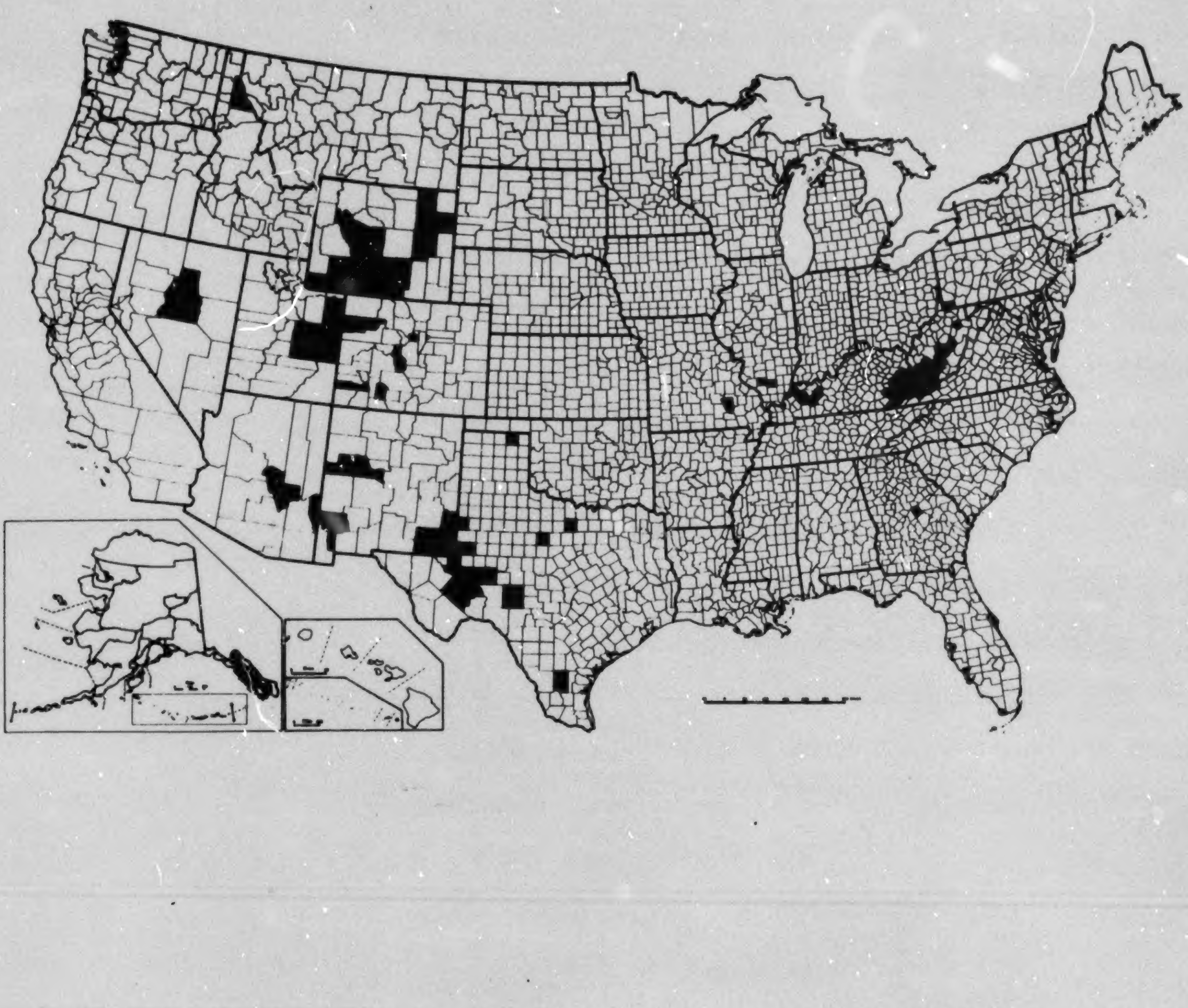
Mining

Mining employment peaked in the early 1920s after the rise of the automobile but before the erosion of the coal market for residential heating, steam-powered railways, and shipping. In 1920, 1.2 million workers were employed in the sector, most of them near the mine sites in rural areas and small towns.[11] Because of reduced coal demand, extensive mechanization, and increased use of imported metal ores, mining employment was cut in half to 0.6 million by the end of the 1960s, despite the intervening rise in oil and gas extraction.[12] After the first oil shortage of 1973, mining employment again rose, dominated by the response of oil and gas exploration to higher product prices and the increased use of coal for electric generation. By 1980, mining employment had again reached 1.0 million, and further increased to 1.1 million in 1982 before slumping back to 1.0 million in 1983 with the recession in mineral use and prices.[13] The composition of the industry has greatly changed. Whereas sixty years ago about two-thirds of mining employment was in coal production, today more than half is in oil and gas. Coal has about a fourth; metal and nonmetallic minerals (other than coal) a tenth each.

During the 1970s, mining was a major rural growth industry, and a number of western counties that had rapid population increase through inmigration did so because of mining booms. Revival of mining was also an important contributor to the sharp population "turnaround" experienced in the Southern Coal Fields. In rural areas, the 1980 census showed 2 percent of the labor force in mining, with the figure for men being 3.1 percent. Eighty-one counties had 20 percent or more of their employed population in mining. Most of these counties were in the coal fields of the southern Appalachians, the oil and gas areas of Texas, and various metal, coal, and oil counties of the Mountain West (see figure 1-6).

Whether there will be a resumption of growth in mining employment is uncertain. Truly high prices for natural gas and oil could trigger renewed interest in coal conversion plants, shale oil extraction, and deep oil and gas drilling. But, events of the last two years have shown how susceptible

Figure 1-6. Nonmetropolitan Mining Counties, 1980



Note: Includes all nonmetropolitan counties in which at least 20 percent of all employment was in mining.

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population.

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all of these projects are to even temporary market gluts and price slumps. Conventional coal mining employment may also have difficulty recovering to 1980 levels as metallurgical and export markets have dwindled in a manner that leaves their future in doubt. Further, the recession of 1981-1983 demonstrated that copper production in developing nations is rather inflexible and unresponsive to lowered prices. The need of these governments for foreign exchange and labor peace, and the continued availability of international credit all foster high output despite lack of markets. Most of the burden of reducing world copper production has fallen on the U.S. industry, which may be wary of reopening its more marginal mines. Even without resumed employment growth, however, the mining industry has a larger relative share of rural and small town natural-resource jobs than it did in earlier decades before the decline in farm work.

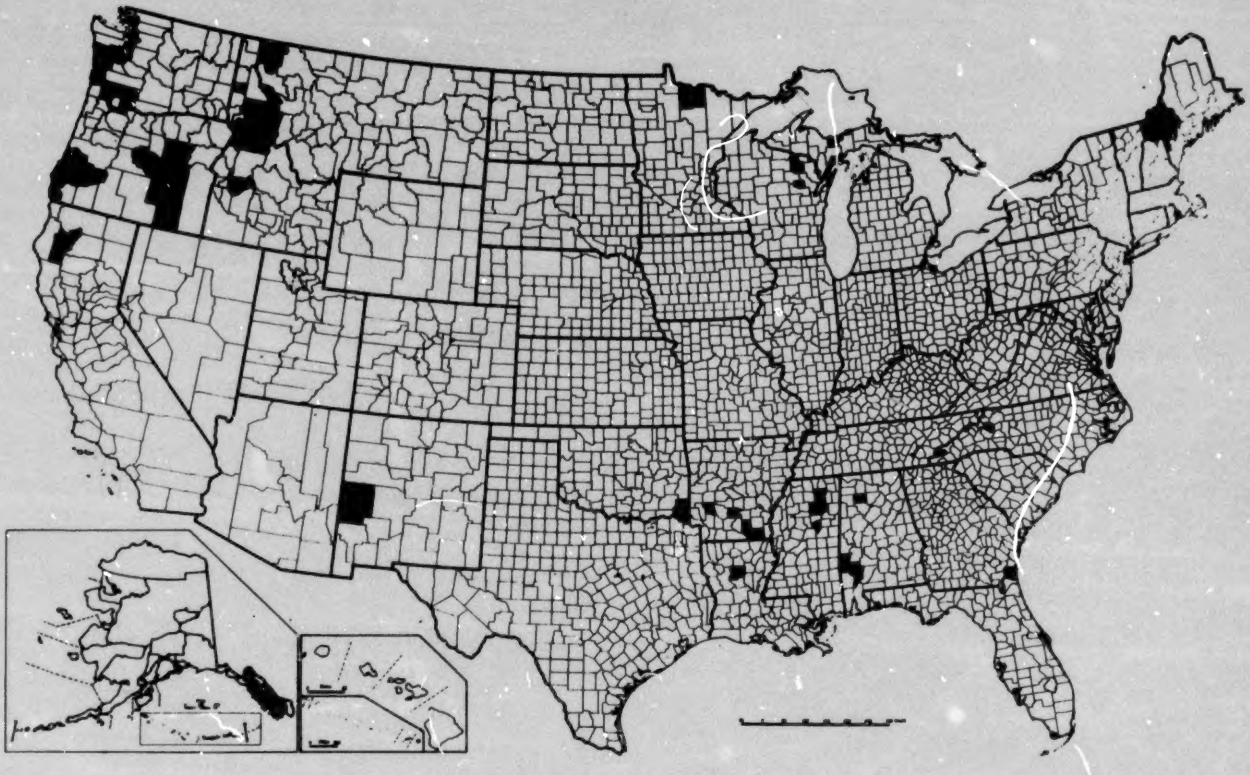
Mining communities have long been among the most diverse ethnically of all rural communities. Workers in a given mining field were often recruited or attracted from various countries. English, Scots, Welsh, Irish, Yugoslavs, Finns, French, Italians, and Hispanics were all commonly found in addition to native-born Americans. In newer Western boom areas, the ethnic diversification continues, although now it is based on in-migration of workers from different regions of the country rather than on foreign immigration. It is noticeable in the Southwest, however, that Mexican American workers have become increasingly more likely than other groups to enter mining work, and the composition of a number of mining settlements there has become more Hispanic over the last generation.

Forest Products

In the nineteenth century, the rise of commercial timber operations resembled the mining industry: companies moved on to other areas as reserves were depleted, rather than operating on a sustained yield basis. In the twentieth century, stabilization began. Historical employment statistics of a comparable nature are not as fully available for forest products as they are for agriculture and mining. However, in 1940, at the tag end of the Depression, the census of that year counted 1.2 million workers in the nation in forestry, lumber, furniture, other wood products, and paper mills, with another 0.1 million unemployed. The number peaked in the 1950 census at 1.5 million and then drifted down to 1.4 million by 1970, as labor-saving technology and market competition from other materials reduced the need for workers in logging and milling, although this was partly offset by growth in furniture and paper. By 1980, the figure was 1.7 million as employment expanded in every phase of the industry except paper (for a discussion of the development and management of forest resources in the Pacific Northwest, see the Stevens paper).

Close to 3 percent of all rural employment was in forestry and wood products in 1980, with the percentage for men being 3.8. Although total employment is somewhat greater than in mining, it is much more dispersed in nature. Only forty-eight counties had more than 20 percent of their workers in forestry and wood products in 1980. A majority of them are in the Pacific Northwest (see figure 1-7).

Figure 1-7. Nonmetropolitan Forestry Counties, 1980



Note: Includes all nonmetropolitan counties in which at least 20 percent of all employment was in forestry and logging, and wood products and pulp and paper mills.

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population.

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Fishing

Although fishing is another extractive natural-resource industry, the number of people engaged in it has never been large in the national context. According to census data, the peak of employment came in 1930 at 73,000. By 1970, the total number of employed and experienced unemployed workers was only 40,000. By 1980, the number employed had risen to 62,000. The fishing industry has experienced much foreign competition and has undergone a process of increased capital requirements and larger but fewer operations--analogous to that in farming. Fishing is locally important in some coastal communities, but in no county does it directly employ as much as a fifth of the work force.

Nonextractive Natural-Resource Activities

Recreation. The legitimatization and commercialization of leisure in twentieth century society has been a significant source of rural employment growth related to recreational use of land, water, and scenic amenities. The proliferation of national and state parks, the creation of numerous dam reservoirs, the shortening of work weeks, the lengthening of holidays and vacations, the increase in early retirement, the influence of the environmental movement, and the growth of disposable income have all been causes or manifestations of this trend.

Inherently, outdoor-based recreation is disproportionately found in rural and small town settings. Its employment effects are somewhat difficult to measure precisely. Most recreation-generated jobs are not uniquely measured or characterized in employment data. Some are quite seasonal in nature and may never appear in the national census with its March employment reference. Basically, most forms of recreation generate employment in personal services (especially hotels and motels), retail trade (such as restaurants or gift shops), real estate (in second home areas), or direct entertainment and recreation (such as golf clubs, amusement parks, ski resorts, and theaters). But a certain level of such activities occurs in almost all communities, and it is only a disproportionate level of employment in these categories that can be attributed to recreation.

If one considers nonmetropolitan counties in which 10 percent or more of all employment was in personal services, entertainment, and recreation in 1980, thirty-six such counties can be identified. This level of specialization in the two sectors most clearly related to recreation is nearly three times that of the nonmetropolitan United States as a whole. Most of these counties are readily recognized as having well-known resort areas, such as those in the Rockies (for example, counties containing Aspen, Vail, Sun Valley, Jackson Hole), Nevada gambling areas, the Hawaiian Islands, eastern coastal resorts, (Nantucket, Key West), Appalachian Mountain resorts (White Sulphur Springs), or dam reservoir areas (Lake Powell, Lake of the Ozarks).

In most cases, the rate of poverty is below the national average and well below the nonmetropolitan average. (The median rate for the resort counties was 11.4 percent in 1980). They tend to attract people as entrepreneurs and permanent residents of above average education and income-earning capacity, although a number of low-skilled service jobs are also created, such as those in motels and restaurants. Work opportunities for women are usually high, with most recreation areas having over half of all resident women in the labor force. Some of the recreation counties are also retirement areas, but this is not typically true in the case of ski resorts. As a group, rural recreation areas have grown rapidly in population in recent times with many new residents of metropolitan origin.

Retirement. One of the commonest sources of population increase in nonmetropolitan America in recent decades has been the influx of retired people. Greater longevity, younger average age at retirement, and improved income levels of older people have all facilitated the apparent desire of a significant fraction of metropolitan residents to live in a rural or small town setting in their later years. Although precise data of net movement of older people into nonmetropolitan counties are not available, it is estimated that 515 nonmetropolitan counties had growth of the population aged sixty years and over of 15 percent or more from net migration, 1970-80.[14] This amounts to a fifth of all nonmetropolitan counties. The net inmovement was about 750,000 persons. Exactly comparable estimates for the 1960s are not available, but a more liberal procedure for that period showed 360 counties with net in-migration rates for older people of 10 percent or more. Thus, the demographic and economic importance of rural retirement grew during the 1970s.

Retirement destinations are no longer limited to the popular stereotypes of Florida and the Southwest. Widespread in-migration has occurred in the Ozarks, the New England coast, the southern Blue Ridge, the Texas Hill Country, the Puget Sound area, the Upper Great Lakes, the Sierra Nevada foothills, western Oregon, east Texas, and the Tidewater areas of

Maryland and Virginia. All of these locations involve dispersed settlement, and not merely aggregations of people in towns. There is a marked tendency to settle around bodies of water--natural or artificial. Many of the numerous dams built over the last half-century primarily for power or flood control purposes have attracted rapid population growth of retired and younger people, as well as seasonal residents. A tally of nonmetropolitan townships and equivalents that border on dam reservoirs in twelve southern states showed a 26 percent population growth from 1970 to 1980, 8 percentage points higher than other parts of the same counties and 10 points above the national nonmetropolitan growth rate.

The economic impact of retirement on an area is difficult to state precisely. If the retired are at all numerous, additional employment is created to serve them particularly in construction, retail trade, health, and other services. Labor force participation rates among retirees themselves are very low--typically less than 10 percent, except among those under 65 years old. But the attraction of retired people serves as an "export" industry for communities as income in the form of pensions, social security, or other externally derived support is drawn into the community.

Older migrants who come to nonmetropolitan communities from metropolitan areas have far lower poverty rates than do other older nonmetropolitan residents. The poverty rate among migrants sixty years old and over who moved into nonmetropolitan counties from metropolitan areas between 1975 and 1980 was only 10.1 percent. This is barely half the rate for all other nonmetropolitan residents of the same age (19.4), and even below the national average for persons of all ages.[15]

Thus, in the case of both the recreation and retirement counties, the use of attractive rural natural-resource features for these purposes has generally led to an income-resource transfer to the affected areas. There are certainly more poor people in rural America today than there would be without the migrants who have come to recreation and retirement areas, but the relatively low proportion of poverty-level incomes among these older people has served to lower the overall percentage of rural poverty.

The recreation and retirement classes of natural-resource counties are not treated in the remaining sections of this report.

SUMMARY

Beyond any question, one of the most far reaching changes in the American economy in the last four decades has been the drastic decline in the number and percentage of rural people engaged in farming. At the end of the Great Depression, nearly a fourth of the U.S. population still lived and worked on farms, whereas the proportion today is barely a tenth that high. Concurrently, the other major natural-resource industries of mining and forest products have failed to grow in employment with the rest of the economy. With modernization and the attendant advances in labor-saving technology, it has become a truism that natural-resource industries can maintain or increase output without additional labor force.

Fortunately for the welfare of rural people, the non-resource-based part of the rural economy has greatly diversified, especially in the last fifteen to twenty years. Manufacturing has decentralized and the quantity and quality of services and trade have rapidly increased. Coupled with a movement of people into rural and small town areas that does not appear to be economically motivated, a revival of nonmetropolitan population growth occurred in the 1970s that was unprecedented in the modern history of the country. Thus natural-resource employment is now much more a part of (and in competition with) a broader rural economy than used to be the case.

This is not to say that the continuing role of natural-resource industries is insignificant. More than 1,000 nonmetropolitan counties can be identified in which at least 20 percent of employed people in 1980 worked in agriculture and food processing, mining, fishing, and forestry (including logging, wood products, and pulp and paper mills). Nationally, 16 percent of all nonmetropolitan employment was in these industries. There is, however, wide regional variation in natural-resource dependence.

Two recent major trends that involve natural-resource use and attraction are not treated in subsequent sections of this report. These are the rapid growth of employment in the recreation industry and demographic and commercial growth stemming from the influx of retired people to rural areas.

NOTES

1. The concepts "rural" and "nonmetropolitan" (sometimes shortened for convenience to "nonmetro") are both used in this report. Both have specific meanings in federal data and neither entirely matches the population of interest in a study of natural resources and rural poverty. "Rural" areas consist of the open country and places of less than 2,500 population that lie outside of urbanized areas of 50,000 people or more. Rural territory includes the most thinly settled and remote parts of the nation on one hand, but it also includes districts that adjoin urbanized areas, have several hundred persons per square mile, and are incipiently suburban, with little employment dependence on natural resources.

   "Nonmetro" territory is defined along county lines. The official criteria are now very complex. In general, metro areas are defined around each city of 50,000 or more people, or, in many cases, around each town that has an urban mass of 50,000 people inclusive of suburbs. Additional counties are added to the area if they meet certain criteria of "metropolitan character" and worker commuting to the central core. All other counties are nonmetro. "Nonmetro" excludes the near-suburban rural population, (an advantage), but includes some cities of more than 40,000 people whose welfare is rarely the concern of programs addressed to rural poverty. In addition, there are a number of top agricultural counties that are metro--especially in the West--usually with many poor hired farm workers in their rural and small town portions.

Although both concepts have some deficiencies for this study, as noted, they are generally valid and produce reasonable estimates of natural-resource-related poverty in rural and small town America. The manner in which census data are designed has prompted the use of both concepts in this study. We have tried to make clear which concept is being used in each instance.

References to the papers and reactors' remarks presented at the workshop are indicated by names of the authors or reactors. The papers and reactors' remarks are listed in Appendix A.

2. The statistical data used in this overview are cited or tabulated from the 1980 Census of Population or earlier population censuses except where otherwise noted.
3. Calvin L. Beale, "Nonfarm Rural America", in Farm Structure: A Historical Perspective on Changes in the Number of Size of Farms. Committee Print, Senate Committee on Agriculture, Nutrition and Forestry, 96 cong. 2 sess., April 1980 (Washington, D.C., Government Printing Office) p. 37.
4. Calvin L. Beale, "Rural America Today: Progress and Problems in Achieving Development Objectives," 1983 Agricultural Outlook Conference (U.S. Department of Agriculture, 1982).
5. See for example, G. Edward Schuh, "The New Macroeconomics of Agriculture," American Journal of Agricultural Economics vol. 58, no. 5 (December 1976) pp. 802-811; and D. Gale Johnson, "Agricultural Policy in the 1980s," The Chase Econometrics Agricultural Outlook Seminar (Arlington, Va., 1980).
6. U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings vol. 24, no. 1 (January 1977) p. 22.

7. Ibid.

8. U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings vol. 31, no. 1 (January 1984) p. 10.

9. Employment in mining and in wood products industries is linked to business cycles and tends to slump severely during recessions. At the time the 1980 Census was taken, employment in these industries was high, and not yet affected by the recession that soon began. Agricultural employment in March 1980 ran about one-eighth below that of the year as a whole because employment is usually greatest during harvest seasons. Thus average farm employment is somewhat understated in decennial census data.

10. John R. Groenewegen and Kenneth C. Clayton, Agriculture's Role in the Economy of the United States, Economics and Statistics Service Staff Report Number AGESS810407, U.S. Department of Agriculture (April 1981).

11. U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings United States 1909-70 Bulletin 1312-17 (ND) p. 4.

12. Ibid.

13. U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings vol. 31, no. 3 (March 1984) p. 47.

14. Unpublished estimates derived from the 1970 and 1980 censuses of population. Prepared by Calvin L. Beale.

15. Nina Glasgow, "The Rural Elderly," unpublished paper, Economic Research Service, U.S. Department of Agriculture, 1984.

Rural Poverty

In 1967, the President's Advisory Commission on Rural Poverty published a report, The People Left Behind, which focused national attention on the problems of rural poverty.[1] During the years since then, significant improvements have been made in reducing rural poverty and improving the lives of rural residents. Still, despite the many gains, poverty in America as a whole remains a problem of major proportions, with the early 1980s witnessing a substantial increase in the nation's poverty population. In 1982, there were 34.4 million Americans living in poverty, or 15 percent of the nation's population, the poverty rate being at its highest level since 1966. Of those, 13.2 million were nonmetropolitan poor representing 17.8 percent of the nonmetropolitan population.[2]

Moreover, poverty in America continues to fall disproportionately on the nation's nonmetropolitan residents. According to the 1980 census, 34 percent of the nation's poor compared with only 28 percent of the nation's total population resided in nonmetropolitan areas (see the Deavers and Brown paper). Furthermore, the income effect of the recent recession-related reduction in employment opportunities has been dramatic in nonmetropolitan areas. The nonmetropolitan poverty rate had decreased from 16.9 percent (12.1 million people) in 1970 to 13.8 percent (9.9 million people) in 1979, but had increased to 17.8 percent (13.2 million people) by 1982.[3]

Poverty is generally defined as a form of income inadequacy--the inability of a household to enjoy a basic standard of living. This standard is employed in the following discussion and refers to the poverty level of income used by the Census Bureau.[4]

There are comparatively few counties that have less than 9 percent of the population with poverty-level incomes (about 3 percent of all nonmetropolitan counties). It may be unduly pessimistic to say that this level of poverty is an irreducible minimum in our rural society. But, from 1970 to 1980, at least, counties with poverty rates below 9 percent were as likely to have minor increases in their rates as to have reductions, although this was a period of widespread decline in poverty for nonmetropolitan counties with higher rates. In general, only counties with exceptional concentrations of nonelderly white people in well-paid jobs have attained levels of poverty below about 9 percent. These include some of the resort or mining counties of the Mountain West, a couple of the smaller state capitals, and a handfull of the wealthiest midwestern farm counties.

It can be argued that such a level of poverty (as the phenomenon is defined in the United States) is typically associated with unfortunate characteristics or experiences of individuals in an otherwise prosperous society and is not likely to result from disadvantageous features of the local system of resource use or control, or from the existence of a chronically suppressed and exploited element of the society. Any community will have a certain number of people who have physical or mental disabilities affecting their capacity to work, who have lost financial support because of the death or disability of a spouse or by spousal abandonment, or who have experienced a business failure in a given year (and whose condition has not been offset by available sources of public assistance). These factors are not all beyond social control or influence or unchangeable in their levels. Indeed, in theory, there might not be any poverty of income if assistance in adequate amounts reached all of those in need.

Nevertheless, the conditions noted are not generally addressed by policies designed to reduce structural, social, or economic obstacles to financial self-support. If one accepts this premise, then rates of poverty higher than the 9 percent threshold reflect systemic problems (usually historic in character) such as work in low-wage or seasonal industries, lack of education, inequitable distribution of wealth, racial and ethnic discrimination, culturally entrenched patterns of poverty-fostering behavior (such as large families, unusually high frequency of out-of-wedlock births or family breakup) or other factors that impose higher community-wide poverty levels than those attributable to individual misfortune.

Given a poverty incidence of 15.4 percent among nonmetropolitan people in 1980 (the last year for which county data are available), then about two-fifths of nonmetropolitan poverty may be above the minimal level currently attainable in our "best" counties and thus may be amenable to broad development, social, and legal programs aimed at reducing poverty.

Who and where then are the nonmetropolitan poor? Just as the proportion of rural residents living on farms has declined dramatically over the past decades so have the farm poor. In 1959, the farm poor represented one-third of the total rural poor (7.4 million) and farming had the highest proportion of poor of any occupational category. Of all farmers, 45 percent were poor in 1959.[5] But by 1982 there were only 1.2

million poor people living on farms, or 22 percent of the farm population.[6] Contributing factors to this dramatic decline have been the exodus of people from agriculture in general and the growth of farmers' off-farm income made possible by the growth of the nonfarm sector of the rural economy. For example, since 1980, families with yearly sales of less than $20,000 of farm products have as a class had no net income from their farming operations and have received all of their income from off-farm sources.[7]

There are, however, certain groups of the nonmetropolitan population who bear the brunt of poverty, namely minorities, women, the elderly, and Southern highlanders. In the first case, rural poverty has historically fallen disproportionately on rural minorities, and the rates remain astonishingly high today. For example, in 1982, only 15 percent of nonmetropolitan Whites were poor compared with 42 percent of nonmetropolitan Blacks and 31 percent of nonmetropolitan Hispanics.[8] And, in 1979, 34 percent of nonmetropolitan Indians (including Alaskan Natives) had poverty-level incomes.

Geographically, nonmetropolitan minority poverty is concentrated in certain regions of the country. The nonmetropolitan poor Blacks are concentrated in the South where poverty rates are among the highest in the nation. Nonmetropolitan poor Hispanics are mainly found in the Southwest, and American Indians on reservations in the Southwest, Great Plains, and the Pacific Northwest. However, despite the high incidence of poverty among minorities, poor nonmetropolitan Whites constitute the majority of the rural poor because of the fact that they are the majority population. It is important to note that while minority poverty declined by 10 percentage points among nonmetropolitan Blacks from 1970 to 1982, the poverty rate among nonmetropolitan Whites actually increased from 13 percent to 15 percent during the same period.[9] Geographically, poor rural Whites can be found in all regions of the country, but are particularly concentrated in the highland areas of southern Appalachia and the Ozark-Ouachita region.

Second, the number of female-headed households is a sensitive indicator of hardship and poverty. Although traditionally the poverty population in nonmetropolitan areas is characterized by two-parent families, the number of female-headed households is rapidly increasing in these areas, a trend expected to continue in the 1980s. For example, during the 1970s the number of female-headed households in nonmetropolitan areas increased by 25 percent and those in poverty by 20 percent. Such increases are particularly significant as the poverty rates among these families are very high (34.6 percent in 1980), especially among nonmetropolitan Black female-headed families (55.1 percent in 1980).[10] Alleviation of poverty among these families is very difficult in rural areas where day care services are in limited supply and employment opportunities available to rural women are generally in low-skilled, low-wage industries. In such work, income is so low that employment often fails to bring families out of poverty.

The third group of nonmetropolitan residents who experience a high incidence of poverty is the elderly. In 1980, 20.5 percent, or 1.9 million of the nonmetropolitan elderly population 65 years and over, had poverty-level incomes. This figure does, however, represent a decline from 2.4 million elderly poor, or from 31.5 percent of the elderly population in

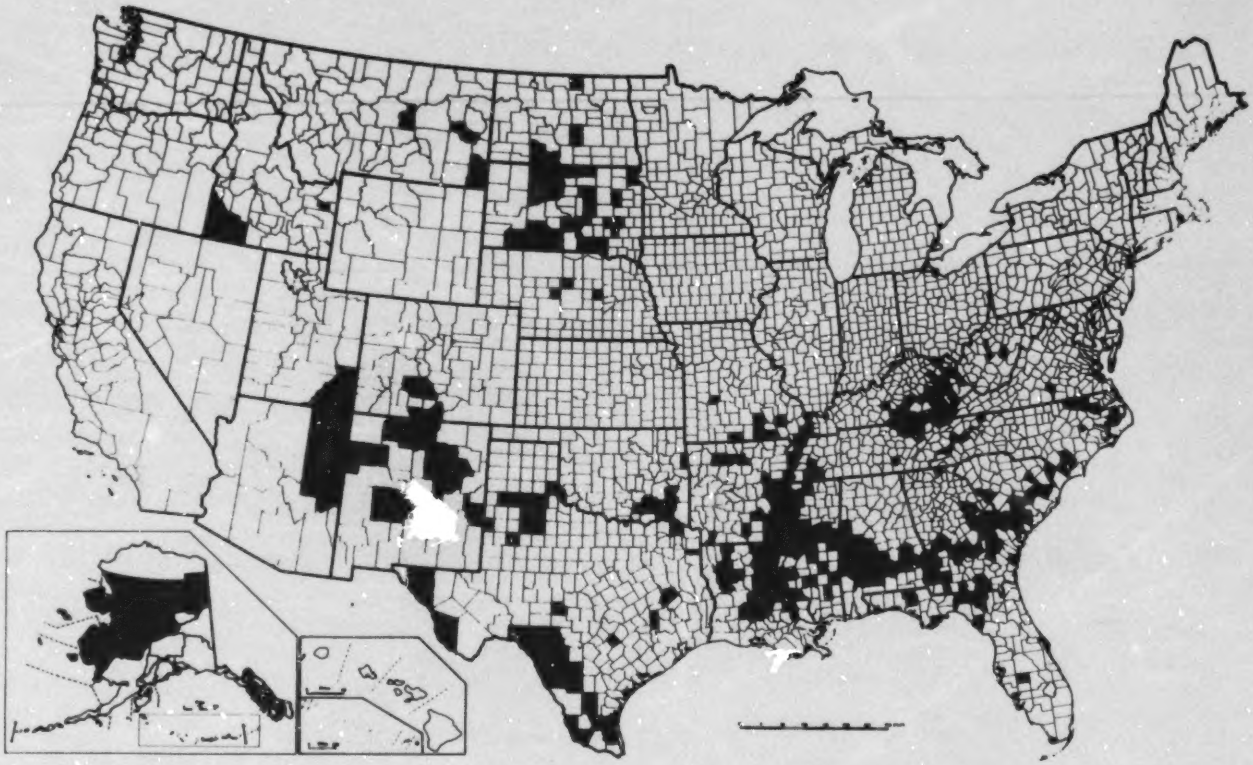
1970.[11] No doubt, a major factor contributing to these declines has been the growth of transfer income, through Social Security and Supplemental Security Income programs. No doubt also the increase in the number of comparatively affluent retirees migrating to rural areas during the 1970s has contributed to the percentage decline in elderly poor.

Another significant indicator of nonmetropolitan poverty is the fact that nearly all of the poorest counties in the country are nonmetropolitan. There are only eight metropolitan counties that have poverty rates of 25 percent or more; whereas 339 nonmetropolitan counties have rates this high (see figure 2-1). These counties are concentrated in the southern Coastal Plains, the southern Appalachian, and Ozark-Ouachita Highlands, the Rio Grande Valley, and scattered areas of the Great Plains. Many of these counties have been consistently in the lowest median income quintile for decades. Their poverty is deeply embedded in the past.

Relatively, conditions in the persistently low-income counties have not changed significantly over the decades. Their residents continue to have below average levels of education (only four in ten adults have completed high school), low labor force participation rates (only one-third of the population are employed), chronic health problems (15 percent of the labor force age population has a work-limiting disability), and a high concentration of minorities (over 25 percent of the population in these counties is Black). To a large extent, these areas have been bypassed by the economic progress found in other parts of rural America (see the Deavers and Brown paper).

An often overlooked reality of nonmetropolitan poverty, and one which distinguishes it from metropolitan poverty, is the fact that a large

Figure 2-1. Nonmetropolitan Counties with a Poverty Rate of 25 Percent or Higher



Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population.

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majority of the nonmetropolitan poor work at least part-time, but are unable to earn incomes above the poverty level. In 1982, 68 percent of poor nonmetropolitan families had at least one worker and 28 percent had two or more members in the work force. The comparable metropolitan figures were 54 percent and 17 percent.[12]

From a national longitudinal study Duncan has shown that most occurrences of poverty are temporary; that the majority of people who experienced poverty-level annual incomes during a ten-year span did so for not more than two years. However, temporary poverty was disproportionately an urban phenomenon. Among those who were persistently poor (eight or more years out of ten), the rural proportion who were was more than double that of rural people in the general U.S. population.[13]

The conventional measures of poverty, including those discussed above, have been criticized for not accounting for cost-of-living differentials or the antipoverty effect of in-kind transfers, such as food, housing, and medical care. Therefore, it has been argued that such measures inaccurately reflect income differentials between regions of the country or places of varying sizes and the size of the poverty population. However, evidence to date shows that even when accounting for regional and residential cost-of-living differentials, the income gap between metropolitan and nonmetropolitan areas is narrowed but not eliminated (see the Hoch, Hewitt, and Virgin paper). Furthermore, when in-kind benefits are accounted for in estimating the size of the poverty population, their effect in lowering poverty levels is greater in urban than in rural areas.

By using wage rates for specific occupations to develop a composite scale factor to deflate incomes to reflect differentials between places of varying sizes and regions of the country, Hoch developed measures of income and poverty which accounted for differences in the cost of living. A number of important results emerged. First, although the nonmetropolitan-to-metropolitan income ratio was narrowed, it was not eliminated. For example, in 1981, the nonmetropolitan per capita income as a percentage of metropolitan per capita income was 74.9 percent before deflation and 88.8 percent after deflation. Second, the nonmetropolitan-to-metropolitan income gap narrowed for Whites, Blacks, and American Indians, although again it was not eliminated. But in the case of Hispanics, the income differential reverses, and after deflation the nonmetropolitan Hispanics appear to be better off than those living in metropolitan areas. Third, the deflation results in an increase in the number of western counties that fall among the poorest in the nation and a decrease in the number of such counties in the South. Therefore, one may conclude that the existing measures of low income may overstate the poverty problem in the South and understate it in the western United States (the Hoch, Hewitt and Virgin paper).

By adjusting income figures for underreporting, federal and payroll tax liability, and in-kind transfers, Seninger and Smeeding developed adjusted measures of income and poverty. The results for 1974 show that the poverty population declined substantially in both metropolitan and nonmetropolitan areas, reducing the official poverty count by 30 percent. However, the impact of in-kind transfers was substantially more pronounced in metropolitan than in nonmetropolitan areas. For example, the adjustments reduced the official poverty population by 37.9 percent in central cities versus only 26.1 percent in nonmetropolitan areas, and non-White central city poverty by almost twice as much (43.5 percent) as nonmetropolitan non-White poverty (23.2 percent).[14]

Further evidence of the reduction in official poverty population, when the value of noncash benefits is taken into consideration, is provided by a recent Bureau of the Census report "Estimates of Poverty Including the Value of Noncash Benefits: 1979 to 1982."[15] Data were collected on the food stamp program, the national school lunch program, public or other subsidized rental housing programs, the Medicare program, and the Medicaid program, and estimates of the value of these noncash benefits during 1979-1982 were incorporated into an assessment of their effect on the size of the poverty population. The study findings were similar to those reported by Seninger and Smeeding concerning the reduction in the poverty population as a result of the inclusion of noncash transfers in metropolitan and nonmetropolitan areas. For 1979 and 1982, the reductions in the size of the poverty population by all estimates were greater in metropolitan than in nonmetropolitan areas, with the greatest reductions in central cities. For example, in 1982 the nonmetropolitan poverty population was reduced between 8 and 31 percent compared with a 10 to 37 percent reduction in central city poverty.[16]

On the other hand, the official poverty statistics mask the underlying extent of poverty-level incomes which exist before cash forms of welfare assistance are counted. (The official poverty measure includes all earned income and cash assistance in estimating the size of the poverty population.) If the ultimate goal is to create adequate earned incomes for able-bodied persons of working age--thus reducing the public burden of income support--then the extent of the underlying problem is minimized by the official poverty statistics, not exaggerated.

Finally, it should be noted that there is no fully satisfactory definition of poverty. We have become accustomed to the term since it was adopted officially two decades ago, but there are many rural people in official poverty who would not apply the term subjectively to themselves and who do not rely on public assistance for income support. For those so inclined and appropriately skilled, the countryside offers the potential for home-produced supplements to food and fuel and an environment conducive to a nonmaterialistic way of life. But, the current official definition of poverty does not separate these people out of the poverty statistics. These numbers, however, are not expected to distort the official statistics to a great extent.

Although progress against rural poverty has been made, nonmetropolitan poverty levels remain high, particularly among rural minorities. And, while the existence of persistent nonmetropolitan poverty is well documented, the basic causes and solutions to the problem are less clearly understood.

Since most rural low-income residents, excluding farmers, have few capital resources, they must earn income through employment. At the same time, in areas with high concentrations of the rural poor, the area economies tend to be characterized by declining industries such as low-wage manufacturing establishments where earnings from employment often fail to provide incomes above the poverty level except for two-worker families. And the ability of these communities to adjust to changing economic development patterns of the rest of the nation is made difficult by low skill levels of the area residents, and by lack of public services, capital, entrepreneurship, and necessary infrastructures to support development.

On one hand, few companies are willing to invest resources and locate plants in areas where communities lack a skilled labor force and the necessary infrastructures and public services to support economic activities. On the other hand, indigenous business development in poverty areas is hampered by lack of capital and entrepreneurial skills necessary to launch successful businesses without outside assistance. The task is further complicated by the fact that many young people with the necessary educational and skill levels migrate away from these areas because of the lack of employment opportunities, making the local problems even more intractable.

The availability of transfer payments mitigates poverty when employment opportunities are not available. However, only the aged, blind, and disabled in nonmetropolitan areas receive protection against poverty equal to that provided in metropolitan areas through Social Security and Supplemental Security Income programs. Other transfers, such as unemployment insurance and Aid to Families with Dependent Children (AFDC) only marginally protect the rural poor, because the inadequate work histories, and the low payment levels and categorical eligibility limitations of AFDC discriminate against the nonmetropolitan poor (see the Castle and Goldstein paper). These programs, although providing important temporary relief are not an adequate solution to rural poverty problems.

SUMMARY

During the 1970s poverty in America was on the decline, but the deep recession of the early 1980s reversed this trend, and by 1982 poverty rates had again reached levels common in the 1960s. Nonmetropolitan residents continued to be disporportionately affected by declines in employment and income and thus their poverty rate increased to almost 18 percent by 1982.

Within nonmetropolitan areas and among their residents, poverty is concentrated geographically, ethnically, and by certain population characteristics. Regionally, rural poverty rates are highest in the South, parts of the Southwest, and the Plains states although large numbers of rural poor can also be found in sections of the Northeast.

Among the nonmetropolitan population, the minorities (Black, Hispanic, and Native American) bear the worst brunt of rural poverty, with poverty rates two to three times as high as among the rural Whites. In addition, there is much rural poverty among Southern highlanders (who are predominantly white), female-headed households, farm residents, and the elderly.

Conventional poverty measures have been criticized for not reflecting cost-of-living differentials or accounting for the antipoverty effect of in-kind transfers, and thus inaccurately portraying the picture of poverty in America. However, the evidence we have to date, limited as it may be, does not substantially change the pattern of poverty rates obtained from the conventional statistics. For example, when cost-of-living differentials between metropolitan and nonmetropolitan areas are accounted for, the income gap is narrowed but not eliminated. Similarly, when in-kind benefits are accounted for in estimating the size of the poverty population, their ameliorating impact is greater on urban poverty than on rural poverty.

NOTES

1. See the President's National Advisory Commission on Rural Poverty, The People Left Behind (Washington, D.C., Government Printing Office, 1967).
2. U.S. Department of Commerce, Bureau of the Census, Money Income and Poverty Status of Families and Persons in the United States: 1982, Current Population Reports, Series P-60, No. 140 (Washington, D.C., Government Printing Office, 1983). pp. 3-4.
3. Ibid., Series P-60, respective years.
4. Families and unrelated individuals are classified as being above or below the poverty level using the poverty index originated at the Social Security Administration in 1964 and revised by federal interagency committees in 1969 and 1980. The poverty index is based solely on money income, including cash transfers, and takes family size differences into account. Its basic assumption is that families require for all living expenses three times the cost of an economy food plan. The average poverty threshold for a family of four used in the 1980 census was $7,412. This threshhold is adjusted annually to reflect changes in the purchasing power of the dollar.
5. Susan Sechler, "Rural Poverty: Progress and Prospects" (Draft, Rural America Task Force, Ford Foundation, 1981) p. 12.
6. U.S. Department of Commerce, Bureau of the Census, Money Income and Poverty Status, p. 4.
7. U.S. Department of Agriculture, Economic Indicators of the Farm Sector: Income and Balance Sheet Statistics, 1982 (October 1983) pp. 86-88.

8. U.S. Department of Commerce, Bureau of the Census, *Characteristics of the Population Below the Poverty Level: 1982*, Current Population Reports Series P-60, No. 144 (Washington, D.C., Government Printing Office, 1984).

9. U.S. Department of Commerce, Bureau of the Census, *Characteristics of the Low-Income Population, 1970*, Current Population Reports, Series P-60, No. 81 (Washington, D.C. Government Printing Office, 1971); and Bureau of the Census, *Characteristics of the Population Below the Poverty Level, 1982*.

10. U.S. Department of Commerce, Bureau of the Census, *Characteristics of the Low-Income Population, 1970* and U.S. Bureau of the Census, *Characteristics of the Population Below the Poverty Level: 1980*, Current Population Reports, Series P-60, No. 133.

11. Ibid.

12. U.S. Department of Commerce, Bureau of the Census, *Characteristics of the Population Below the Poverty Level, 1982*.

13. Greg J. Duncan, *Years of Poverty, Years of Plenty* (Ann Arbor, Mich., Institute for Social Research, University of Michigan, 1984) pp. 49, 51.

14. Stephen F. Seninger and Timothy M. Smeeding, "Poverty: A Human Resource-Income Maintenance Perspective," in Amos H. Hawley and Sara Mills, eds., *Nonmetropolitan America in Transition* (Chapel Hill, North Carolina, University of North Carolina Press, 1981) pp. 382-436.

15. See U.S. Department of Commerce, Bureau of the Census, *Estimates of Poverty Including the Value of Noncash Benefits: 1979 to 1982*, Technical paper 51 (1984).

16. U.S. Department of Commerce, Bureau of the Census, Estimates of Poverty, table 1.

3

Natural Resources and Rural Poverty

It is not possible to say precisely what percentage of American rural poverty is causally related to patterns of natural-resource ownership or use or to the legacy of past uses. It does seem clear that most rural poverty is not highly and causally natural resource related. However, there may well be exceptions to this generalization in certain parts of the country. The following discussion will examine the linkages between rural poverty and natural resources.

AGRICULTURAL POVERTY

As we have seen, poverty rates for farm people have consistently been higher than those for the nonfarm population at the national level. There is much regional variation however, and even large-scale commercial farm operations may have wide year-to-year fluctuations in income. It is not unusual for farmers with substantial asset wealth to be in "poverty" in a given year if they have experienced crop failure or a collapse of commodity prices.

Taken as a whole, the population living on farms normally reports lower median incomes and a higher rate of poverty than the nonfarm population. Poverty rates were 14.7 percent and 12.3 percent respectively for the U.S. farm and nonfarm populations in 1979. Still, poverty on farms is less than that among the total rural nonmetropolitan population (15.8 percent). One feature of farm poverty that seems anomalous at first is the fact that although it is less common than poverty in the total rural nonmetropolitan population, the average income deficit among the farm poor is much higher than that of all rural nonmetro poor. In 1979, poor farm families had an average income that was $3,735 below the poverty line, compared with $3,022 for all rural nonmetropolitan poor. The explanation seems to lie in the fact that the typical farm family is susceptible to having actual income loss, as noted above. The incidence of income loss is not shown in the 1980 census. However, a national sample in 1976 of families with farm self-employment revealed that a fourth of them had lost money from their farming enterprise in the prior year.[1] Comparatively few rural nonfarm families have this risk. They may have low incomes but seldom negative ones.

Regionally, farm poverty rates in the 1980 census were highest in the northern Great Plains states, where they averaged over 20 percent in the Dakotas and Montana. At the other end of the country, Maine also had 20 percent of its farm population with poverty-level incomes. Low farm profits in commercial farming areas with limited alternative sources of income seems to have been the source of the high rates. In each state cited, the poverty rates were higher than they had been ten years earlier.

In contrast, there were rapid declines between 1969 and 1979 in farm poverty in all southern states that traditionally had high rates in the past. All of the twelve southern states that had farm poverty rates of over 20 percent in 1969 were below that level in 1979, with five of them having less than half the level of the earlier year. Some of this drop was caused by use of a more restricted definition of "a farm" in the 1980 census that probably reduced the number of older poor people of very limited agricultural activity who were previously counted as "on farms." But most of the decrease is thought to be real, reflecting the continued consolidation of farms in the South and the wide availability of off-farm work for supplementary income. The continued rapid exodus of Blacks from farming, whose poverty rate in 1969 was 54 percent, also contributed to the decline.

As a result of the drop in Southern farm poverty, the rise in Great Plains poverty rates, and a lack of further decline in the Corn Belt and Dairy states, there was much less variation in poverty rates for the farm population between states in 1979 than ten years earlier. And the largest numbers and rates of poor farm people are now in the West North Central states rather than the South.

In counties where agriculture predominates, the poverty rate, at 17.7 percent in 1979, was somewhat above that of all nonmetropolitan counties (15.4 percent). This was true for each minority group, but particularly for Blacks and Hispanics (see table 1-4). In general, the educational attainment in the agricultural counties is now slightly higher than that of the rest of the nonmetropolitan population. As late as the mid-1940s, the mass of farm people did not have any high school education even in states such as Wisconsin and Minnesota that had a progressive reputation. But the notion that it only takes an eighth grade education (or just a high school education) to operate a farm is gone in commercial farming areas. It is in farm counties with significant minorities of Black and Hispanic hired workers that educational levels are still low. It is these areas that contribute the most to raising the overall level of poverty in farm counties above the national nonmetropolitan average.

Despite the injury-prone nature of farm work, all regions except the South report less work-limiting disability in farm counties than in other types of nonmetropolitan counties, whether resource-related or not. The general level of health is good. Employment of women is somewhat low (41.2 percent versus 46.4 percent in non-resource-related counties), and this undoubtedly contributes to the modest elevation of poverty in farm counties. The basic problems, however, are inadequacy and instability of returns from farming (even for competent efficient operators), and the low wages of hired workers. The best of the farm regions (Region 1, Dairy Belt and western Corn Belt) may be the model of agricultural wealth and productivity to the rest of the world, but a seventh of its people had incomes below the poverty standard in the 1980 census (see table 1-4).

Over the last generation, the farm-resident population has come increasingly to be composed of farm operators and their families. Hired farm workers are now much more likely to live off the farm than on it. In 1980, only 18 percent of hired farm workers lived on farms, compared with 55 percent in 1950. Because hired workers no longer typically live on farms and are the poorest group of people in farming, their removal from the farms has also been a factor leading to a reduction in the poverty rate of farm residents. But it increasingly means that rural farm data are representative only of the operator class. It should be noted that some farm workers receive noncash perquisites such as housing. Even so, allowance for such benefits would not significantly eliminate the disparity between the incomes of farm workers and persons in most other occupations.

Hired farm work has long been one of the lowest paid, least protected, and least prestigious of occupations. The work is often seasonal, with intermittent unemployment. Formal educational requirements are minimal, (although some real skills are required if the work is to be done properly). The occupation was among the last to be protected by Social Security and Unemployment Compensation legislation. It draws disproportionately from disadvantaged ethnic groups and illegal immigrants.

In no other major occupational group is the incidence of poverty as high as among hired farm workers. Precise poverty data for hired farm worker households are not available. However, an approximation of the poverty level from 1981 income data yielded an estimate that 31 percent of hired farm workers were in economically disadvantaged (poverty) households. The estimate ranged from 25 percent for White farmworkers to more than half for Blacks.[2]

The plight of migrant farm workers is familiar to the public, usually because of attention given to poor conditions in the camps where they live. But this group is a small part of the total hired farm work force. National surveys consistently show only about 200,000 persons who do migratory farm work in the course of a year (exclusive of foreign nationals who were back in their home countries at the time of surveying).[3] This is only 8 percent of hired farm workers. The vast majority of farm workers are local persons. Nearly half are primarily students, housewives, or retired persons who engage in seasonal work to supplement their income, often for less than twenty-five days a year, and are of average social and economic status.

The regular hired workers, who do 150 days or more of work annually, tend to be poorly educated, however, with 44 percent having only eight years or less of schooling.[4] The regular workers have a large Hispanic and Black or other non-White race component (35 percent). Among the regulars, there are major differences between the Whites and the minority groups. The Whites are much better educated--only 24 percent have just a grade school education compared with 74 percent of the minority workers. In addition, the groups tend to do different work. Whites are disproportionately found in grain, other field crops (such as potatoes, peanuts, hay, sugar, crops, seeds), dairy, and livestock work. A majority of Hispanics work in vegetables, fruits, nuts, and cotton; while Blacks are heavily employed in tobacco, vegetables, fruits, nuts, and cotton.

For years, hired farm work was a declining occupation, as mechanization reduced the need for hand labor in farming, but since about 1970, the number of persons who do such work has stabilized. Although national agricultural income policy is largely directed to supporting farm-operator income and building export markets, the most serious and difficult poverty issues in the industry by far are those related to hired workers whose social condition often bears little relation to the condition of farm operators.

MINING POVERTY

In counties having a 20 percent or higher level of employment in mining, the overall incidence of poverty-level income was 17.1 percent in 1979. This is somewhat above the average of non-resource based counties (14.9

percent). A curious anomaly of mining counties is that they have median household income levels that are higher than those in nonresource counties ($14,957 versus $14,327). In effect, although the mining areas have many households with good income, the distribution of income is skewed, with a disproportionate number of people having low incomes--at least in relation to family size--even while the majority of the population is comparatively well off. Furthermore, the incidence of extreme poverty, defined as income less than three-fourths that of the poverty level, is higher in mining counties (11.9 percent of the population) than in any other class of counties examined.

This pattern of income distribution in the mining group as a whole is a result of the widely contrasting economic condition of people in the Southern Coal Fields, compared with those in Texas and the West, where almost all other mining counties are located. The southern coal counties showed a poverty rate of 20.6 percent, compared with 15.3 percent in the Texas oil and gas area and just 10.5 percent in the varied mining areas of the West (see table 3-1).

As of 1979, in nonmetropolitan America as a whole, a little less than two-thirds of the poverty population was severely impoverished (income less than three-fourths of the poverty standard). In the Southern Coal Fields the incidence of severe poverty is higher than that of total poverty in metropolitan America. In contrast, mining in the West is associated with income levels above those in the nation as a whole. In short, one cannot generalize about the relationship between mining and poverty in America. It differs widely from one region to another.

Table 3-1. Characteristics of Nonmetropolitan Mining Counties, 1980[a] (absolute numbers in thousands)

Characteristics	Total	Region 1	Region 2	Region 3	Region 4
Population					
Total	1,904	1,134	115	527	128
White	1,776	1,091	100	462	123
Black	51	39	2	5	6
Indian[b]	26	1	0.5	24	0.1
Hispanic[c]	143	8	37	97	0.6
Percent high school graduates	50.3	41.7	52.9	68.5	51.8
Female labor force participation rate	33.5	28.5	39.9	43.3	34.6
Percent of persons 16-64 with work disability	13.4	16.9	6.9	7.5	11.9
Percent unemployed persons in labor force, 1979[d]	19.7	24.0	10.7	13.9	22.8
Median household income, 1979	$14,957	$13,058	$16,255	$18,761	$13,733
Percent of persons in poverty, 1979					
Total	17.1	20.6	15.3	10.5	14.3
White	16.1	19.9	14.0	8.6	13.6
Black	32.9	32.7	e	35.9	25.5
Indian[b]	29.0	e	e	28.6	e
Hispanic[c]	20.8	31.6	25.9	17.9	e
Percent with income below 75 percent of poverty level	11.9	14.5	10.5	7.2	9.1

Note: Region 1: Kentucky, Virginia, West Virginia. Region 2: Texas. Region 3: Census West. Region 4: Remainder of the United States.

Source: Special Tabluations from the 1980 Census of Population.

[a] All nonmetropolitan counties in which at least 20 percent of all employment in 1980 was in mining.

[b] Includes Alaskan Natives.

[c] The Hispanic population may be of any race. Nearly three-fifths of all nonmetro Hispanics reported themselves as White in the 1980 census. Most of the remainder were classed as "other races," but small numbers were Black or Indian. Thus, the data shown by race are not mutually exclusive of data for Hispanics.

[d] That is, percentage of persons in labor force who experienced some period of unemployment during the year.

[e] For base population less than 5,000, poverty rate is not shown.

The poverty of the Southern Coal Fields is accompanied by a variety of other disadvantageous conditions, of which four are identified here. The female labor force participation rate of 28.5 percent in 1980 was far below that of the nonmetropolitan women as a whole (45.1 percent). Such a rate is an anachronism, more characteristic of rural and small town society a generation ago. It clearly is a major contributor to the high incidence of poverty in the coalfields. The low participation of women in the labor market seems primarily caused by the lack of economic diversification and urbanization in the region. In addition, although mining nowhere employs large numbers of women, for some reason women have made even less entry into the mining industry in the Southern Coal Fields than they have in the West. Women made up about 8 percent of mining employment in the West but only 4 percent in southern Appalachia.

Furthermore, 24 percent of the work force in the Southern Coal Fields area were unemployed at least part of the year preceding the 1980 census. This is double the level for the Texas and western mining areas combined, and a third above the 18 percent average for nonmetropolitan workers as a whole. Some 17 percent of the population of working age in the Southern Coal Fields reported having a work-limiting health disability in 1980. This is among the very highest work disability rates reported for any grouping of counties in the nation, well above the 10 and 11 percent values found in non-natural-resource counties or in other resource counties as a class. Moreover, while nearly four-fifths of the work disability population in the coalfields reported that their disability prevents them from working, less than three-fifths of those with disabilities in all other natural-resource counties claim their disabilities to be work preventing.

Some of the work disability is a consequence of "black lung" pulmonary disease contracted in underground mines. However, higher than average disability rates are also found among women in the area and also in nearby nonmining counties. Whether they stem from a history of poor nutrition and health care, or from high accident rates, or even a propensity to define disability liberally, the high disability rates reduce earning power in the area.

The fourth characteristic that should be noted is low educational attainment. Although educational levels are rising in the Southern Coal Fields as they are everywhere, only 42 percent of the population 25 years old or over in 1980 had completed high school, compared with 59 percent in nonmetropolitan America as a whole, and 68 percent in western mining areas. The continued lack of standard educational attainment among so many of the coalfields residents has to be a negative factor in economic development. (See also the Duncan and Duncan paper for a discussion of coal and poverty in Kentucky.)

Although, western mining has its share of controversies, usually either over environmental concerns or related to equitable arrangements with Indian tribes, the general social and economic condition of the population in western mining areas is good, at least as measured by income and educational levels (both well above the national average), and by poverty, annual unemployment, and work-limiting health problems (all well below the national average).

However, the western areas are not immune to the cyclical slumps that plague mining everywhere in this country. Since 1980, many western mining workers have had periods of unemployment, especially those producing industrial metals or oil and gas. Indeed, it is uncertain when or if the level of employment found in 1980 will be regained. But, many of the workers affected had not been in the region long, and there is not the legacy of stranded and poor people as found in the Southern Coal Fields.

FORESTRY AND RURAL POVERTY

Nonmetropolitan counties in which at least 20 percent of the employment in 1980 was in forestry, logging, lumber and wood products, furniture, or pulp and paper mills had a population of 1 million (see table 1-3). Half of this number was in the Pacific Northwest, especially in Oregon and Washington. The forest products counties generally score well on measures of socioeconomic status. In 1980, the percentage of high school graduates (61 percent) was slightly higher than that of the nonmetropolitan population as a whole (59 percent). Median household income levels were also marginally higher, and the poverty rate (14.4 percent) was a bit lower than that of all nonmetropolitan counties (15.4 percent) or for that matter of nonmetropolitan counties that are not natural-resource counties (14.9 percent). Labor force participation rates for women are about two percentage points lower than the nonmetropolitan average, but this is not bad given the comparatively remote location of many forest industries and the rather arduous and male-dominated nature of most such work.

An exception to the relatively favorable picture of forest industry counties is found in the high percentage of unemployment experienced in them. In 1979, 22 percent of all workers living in forest industry counties in 1980 suffered one or more periods of unemployment during the year, compared with an average of 17 percent in all natural-resource counties. This occurred even though 1979 was a good year for forest industry employment. Work is especially subject to seasonal layoffs in logging where fewer than half of the workers had year round work in 1979. Work in some phases of the industry is also acutely sensitive to cyclical slumps in housing construction. Unemployment was very high in 1981-1982 and part of 1983.[5] In some of the forest industry counties, unemployment averaged more than 20 percent of the labor force for the entire year of 1982 and almost certainly affected at least twice this percentage of the population at some time during the year.[6]

Within the industry as a whole, work in pulp, paper, and paperboard mills consistently pays high wages well above the average of all timber industry jobs, or of all U.S. wage and salary work. For example, in 1981, workers in these mills averaged annual payrolls of more than $23,500 per worker, compared with $14,400 for all U.S. workers and $12,500 to $14,500 for most other segments of the forest industry sector.[7] The pulp and paper part of the industry was also relatively immune to the recession.

An exception to the pattern of good wages is found in the wooden container industry (boxes, pallets, skids, and the like). There are many small plants with comparatively low skill levels required, and wage and salary jobs averaged only $9,800 pay per worker in 1981.[8]

Although much of the forest products industry is now operated under sustained-yield practices in contrast to the cut-and-abandon practices that were so common in the nineteenth and early twentieth centuries, periodic dislocations of people are not entirely a thing of the past as mills close or an extended period of timber replanting and regrowth is entered. A recent example is the attractive but remote company small town of Valdetz in western Oregon, which is being demolished as operations have ceased.

POVERTY IN COUNTIES WITH A COMBINATION OF NATURAL-RESOURCE INDUSTRIES

In 1980, counties with 20 percent of their employment in two or more natural-resource industries had the same poverty rates (17.0 percent) as did all natural-resource counties as a class. And they deviated only negligibly from the other counties in education, unemployment, female labor force participation, and work-limiting disability (see table 3-2).

There were significant regional variations among the combination counties, however. Those in the Lower South exhibited the same high poverty rates (better than 20 percent) that other southern counties with a large minority of Blacks did, and those in the Appalachian South shared the relatively high poverty of the mining counties of the same region (again better than 20 percent). These areas both have low educational attainment, and higher than normal disability rates. The presence of more than one form of natural-resource employment in these areas does not yield levels of income equal to those in the typical non-resource-oriented county. On the other hand, counties with multiple forms of resource dependence in the Midwest, the Plains, and the Northwest share the lower than average poverty rates of other counties in those areas (11 to 13 percent).

Table 3-2. Characteristics of Nonmetropolitan Combination Natural-Resource Counties, 1980[a]

(absolute numbers in thousands)

Characteristic	Total	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
Population							
Total	9,169	2,585	802	2,472	1,405	475	1,431
White	7,955	2,551	688	1,784	1,135	464	1,333
Black	858	11	110	653	79	2	3
Indian[b]	118	13	1	25	25	4	49
Hispanic[c]	492	14	7	31	359	6	75
Percent high school graduates	56.6	61.2	41.9	47.7	53.8	67.8	70.5
Female labor force participation rate	43.3	44.4	42.7	41.4	41.9	45.8	45.6
Percent of persons 16-64 with work disability	10.6	9.1	12.9	13.1	9.9	7.6	9.7
Percent unemployed persons in labor force, 1979[d]	17.6	17.0	19.8	17.4	17.8	10.5	20.2
Median household income, 1979	$13,350	$14,265	$11,707	$11,543	$13,718	$14,900	$15,137
Percent of persons in poverty, 1979							
Total	17.0	12.7	21.6	23.1	17.5	11.4	13.1
White	13.8	12.4	20.4	15.1	14.3	11.1	11.9
Black	42.4	27.5	29.7	45.3	38.1	[e]	[e]
Indian[b]	30.7	34.0	[e]	28.5	35.4	[e]	29.4
Hispanic[c]	28.0	19.3	30.4	29.7	28.5	17.4	27.1
Percent with income below 75 percent of poverty level	11.1	7.8	14.5	15.4	11.5	7.3	8.3

Note: Region 1: Northeast, East North Central, Minnesota, Iowa, Missouri. Region 2: Kentucky, West Virginia, Virginia, Tennessee. Region 3: Rest of Census South, except Texas. Region 4: Texas, New Mexico, Arizona, and California. Region 5: North Dakota, South Dakota, Nebraska, Kansas. Region 6: Census West, except Arizona, California, New Mexico.

Source: Special Tabulations from the 1980 Census of Population.

[a] All nonmetropolitan counties in which no one resource activity was dominant, but in which at least 20 percent of all employment combined was in agriculture and food processing, fishing, mining, and forestry, logging and wood products, and pulp and paper mills.

[b] Includes Alaskan Natives.

[c] The Hispanic population may be of any race. Nearly three-fifths of all nonmetro Hispanics reported themselves as White in the 1980 census. Most of the remainder were classed as "other races," but small numbers were Black or Indian. Thus, the data shown by race are not mutually exclusive of data for Hispanics.

[d] That is, percentage of persons in labor force who experienced some period of unemployment during the year.

[e] For base population less than 5,000, poverty rate is not shown.

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MINORITY POVERTY AND NATURAL RESOURCES

Blacks

The dynamics of change in the American Black population have been highly varied and quite rapid over the last half-century. It would be difficult to point to any change that has been more central and far reaching than the exodus from farming. Although for a generation now we have thought of the Black population as being concentrated in metropolitan central cities, it was more rural than the White population in all earlier periods of U.S. history. The economic justification for slavery was the use of Blacks as agricultural labor, and emancipation did little to alter this basic pattern. With World War I and the postwar years, a step-up in urbanization began, but in 1930, almost two-fifths (39 percent) of the entire Black population still lived on farms (see also the Williams, Morse, and Webber paper).

It is fruitless to try to apportion the outmigration that took place thereafter between displacement from farming and the lure of the cities. Both factors operated. Three-fourths of all Black farmers had been tenant farmers, most commonly in cotton and tobacco. They had no control over their destiny in farming once the mechanization and chemicalization of agriculture destroyed the logic of the family labor tenant system. At the same time, knowledge of job opportunities and the better life in the cities, away from the controls and chronic poverty of the rural South, convinced many Blacks to leave the farm before actual displacement occurred.

Today, 94 percent of the Black farmers are gone.[9] The flight of the owners was only relatively less than that of the tenants. There was no real land reform after the Civil War, and Blacks who eventually acquired farms typically had small units that were not suited for the mechanized farming of the post-World War II era that relied on large acreages, volume production, and smaller profit margins. By 1978, there were only about 57,000 Black-operated farms left, and the median age of the farmers was very high (57.5 years), reflecting the failure of young people to enter the business.[10]

By 1980, only 0.4 percent of the U.S. Black population lived on farms. For some years now, the primary role of Blacks in farming has been as hired workers rather than as operators. On the large plantations, a minority of the share croppers were converted to paid year-round workers when the tenant system was abandoned. But further labor-saving innovations in farm technology continued to erode the amount of work available. Blacks continue to play a critical role through their labor in the conduct of agriculture in the Delta and certain other areas. But, the generally low wages paid for hired farm work and the seasonally limited nature of much of the work are not conducive to good income and adequate levels of living. This is not to say that living conditions of Black farmers and hired workers have not improved over the years. They have. But they lag far behind societal standards on average.

In the process of leaving the land, many Black land-owning families sold or otherwise lost their land. The amount of land owned by Black farmers fifty and sixty years ago was considerably more than that owned by all Blacks--farm and nonfarm alike--today. (This considers land in plots of an acre or more and does not include smaller house lots). The large number of heirs per family, the distant dispersal of heirs, the lack of wills, the clouded nature of titles, and other circumstances have led to the loss of Black ownership of at least 5 million acres of land.[11]

There has been a recurrent sense of concern in parts of the Black community over the future of Blacks as farm operators and the ownership of rural land, reflected most recently in a report of the Civil Rights Commission.[12] But in a time when the number of commercial farms continues to decline because of poor farm income, the re-entry of Blacks into full-scale agriculture seems doubtful unless a stronger motivation develops among young people for farm life and unless a substantial program of financial and technical assistance is organized well beyond that presently available. An increase in small farms that combine part-time farming with off-farm work is not out of the question though. Such farms are increasing in number nationally. Whether Blacks are participating in this trend is not currently known.

Blacks are the only major racial group in which nearly as many residents are employed in timber industries (including manufacturing) as in agriculture. Some 6.9 percent in 1980 were so engaged. The location of rural Blacks has with minor exceptions always been in the timbered South, whereas large numbers of Whites, Indians, and Hispanics live in unwooded areas of the prairies, plains, and the semi-arid West. Blacks have long worked in timber cutting, turpentining, and sawmills.

In the past, the role of timber work did not remotely compete with farming in the number of Blacks employed. But this work has not diminished to the extent that farm work has. The South with its mild climate is ideal for rapid growth of trees and has a wide variety of wood-processing industries. Blacks have a proportional employment in these industries, but not a proportional ownership of the forests. Counties with high participation of Blacks in wood industries have substantial rates of Black poverty, but typically not to the extent as those in areas that are or were the most intensely involved in plantation agriculture. It may well be that in the future the welfare of rural Blacks will come to depend somewhat more on wood industries than on farming.

Comparatively few Black workers are in mining. Black miners have been an element in the coal mining industry in parts of eastern Kentucky and southern West Virginia and have some role in sand and gravel operations and oil and gas drilling. By and large, however, rural areas inhabited by Blacks have not been richly endowed with minerals, and only limited migration to mining work elsewhere took place.

Hispanics

The Hispanic minority has by far the strongest commitment to natural resource work of any of the major rural and nonmetropolitan groups. Thirty percent of employed rural Hispanics were in natural-resource jobs in 1980, a clear level of dominance. Among rural Hispanic men, the figure reached 38 percent.

The strong Hispanic dependence is largely attributable to the key role of that ethnic group in agriculture, mostly in California and Texas, and particularly in irrigated farming. By a margin of 8 to 1, Hispanics in agriculture were hired farm workers in 1980, rather than farm operators or managers. In the urban part of the nonmetropolitan population, the data suggest a hired worker-to-operator ratio of as much as 20 to 1.

At any given time, these workers are subject to competition from low-wage illegal aliens, usually from Mexico. Some such workers are counted in the numbers just given, if they were in the United States at the time of the census, were successfully located, and were not treated as temporary visitors. Many, however, move between this country and Mexico on a seasonal basis or as they earn a stake and return home for a while. By the very nature of their clandestine entry their precise numbers are unknown. It is known that about 100,000 are apprehended each year in agriculture, and one researcher has estimated their typical total annual number at 350,000.[13]

Hispanics also have a somewhat higher than average representation in mining, with 5.5 percent of their nonmetropolitan workers so employed, more than twice the proportion for non-Hispanics. They have become prominent in metal-mining operations in the Southwest and in oil and gas production in Texas, in some places constituting a majority of the work force. Mining work has been an avenue of upward economic mobility for many of the Hispanics engaged in it. Especially in the metal mining areas of Arizona, New Mexico, and Colorado, poverty rates are much lower for Hispanics than elsewhere, although the rates still are higher than those for White people in the same counties.[14]

Native Americans

Historically, Native Americans (including Alaskan Natives) have been one of the poorest segments of the nation's population. Today, they number slightly over 1.5 million people, of whom about 60 percent live in rural and nonmetropolitan areas. Only slightly over 22 percent of all Indians continue to live on reservations. The largest concentrations of Native Americans are found in the Southwest, the Northern Plains, and the Pacific Northwest.

The incidence of poverty among nonmetropolitan Indians (30.4 percent) continues to be well above the national average for all nonmetropolitan residents--with the rate being even higher among reservation Indians (40.7 percent). Regionally, the highest incidence of poverty among Native Americans is in Arizona, South Dakota, Utah, and New Mexico, where poverty rates ranged from 43.5 percent to 49.8 percent in 1979. These rates largely reflect conditions among the Navajo and the Sioux, the two largest tribes with high rates of poverty.

There are also large numbers of rural Indians in portions of the South, especially in Oklahoma and North Carolina. Their poverty rates (averaging 27 percent) are substantially lower than those in the northern Plains and the West, but still are well above those of rural Whites.

In 1980, only 14.7 percent of Native Americans living in rural areas were employed in natural-resource industries. This is somewhat less than the U.S. total of 16 percent for all rural workers. This percentage may seem low given the wealth of natural resources found on many Indian lands. But even among the Navajo whose reservation contains substantial mineral resources, only about 12.5 percent of employment was in natural-resource industries. Among these industry categories, agriculture and food processing employed the largest percentage of all rural Indians, 6.7 percent. Employment in forestry and fishing was somewhat above the average for all rural workers, as fishing plays an important role in the economy of Native American tribes in the Pacific Northwest. Mining employed 3.1 percent of rural Indians. At the same time, manufacturing accounted for only 18.0 percent of their employment in contrast to the service sector and government, which together employed 43.5 percent of all native Americans in rural areas.

Several aspects of the labor force participation pattern of nonmetropolitan Indians serve to lower their income. Almost 30 percent of all employed rural Indians (inclusive of Alaskan natives) had experienced some unemployment in 1979. At the same time, Indians have low rates of male labor force participation, as well as female; for example, over 21 percent of nonmetropolitan males in the prime labor force years (25 to 54 years old) were neither working nor looking for work in 1980. Some of them were "discouraged workers" (to use the Department of Labor's term) who would have wanted work if they thought it was available, but believed it futile to look. Among nonmetropolitan White men of comparable age, only 7.6 percent were not in the labor force.

Employed nonmetropolitan Indians work fewer hours on average per year than do other groups. In 1979, somewhat less than half of employed Indian males had 50 weeks or more of work, compared with 65 percent of White males. Of Indian males who experienced unemployment during the year, the average duration of lack of work (17.8 weeks) was considerably longer than that for Whites (14.6). Comparable evidence of more limited participation in employment could be cited for women, except that the disparity between Indian and White nonmetropolitan women is not as great as that for men.

Complicating further the low-income problem of so many Native Americans are the large family size and rapid rate of population growth. The recent level of childbearing approaches a biological doubling of population in each generation and that creates comparatively low per capita income levels even where wages and employment availability are average.

Contributing factors to the high incidence of poverty, high unemployment, and low labor force participation rates undoubtedly are the lack of economic diversification, the employment opportunities available, and the low skill and educational levels of the group as a whole. Only 46 percent of all rural Indians had completed high school, and only 17 percent had attended one or more years of college. In addition, reservation economies have traditionally lacked a diversified economic base and private sector employment. The federal government has limited its role to supporting services and has not invested its resources in the development of a private, productive sector of the reservation economies. Tribal governments in turn have lacked capital and technical know how to expand the base. What private sector development has occurred has been mostly limited to low-wage manufacturing. In addition, natural-resource extraction has occurred on reservations where such resources are located. As discussed in chapter 4, however, resource extraction on Indian lands has not generated many employment opportunities for native Americans, and much of the wealth generated has left the reservations.

RURAL POVERTY AND NATURAL RESOURCES: SOME REGIONAL VARIATIONS

Almost every area has an aspect of its economy that is linked to natural resources. But, the very notion of what is a natural resource varies from one time to another within a given area. A resource is not a resource until someone wants it and is willing and able to bear the cost of extracting it. For example, the huge reserves of sub-bituminous coal in the northern Great Plains or the deep natural gas reserves of western Oklahoma did not become resources in development terms until the rising costs of other energy sources made them so in recent times. In addition, historical and cultural circumstances within an area structure the presence (or absence) of poverty and natural-resource linkages in ways that have to be understood if effective approaches to remedial policies are to be taken. Three examples are given here.

Southern Appalachians

The deeply dissected Cumberland Plateau country of southern West Virginia, eastern Kentucky, and smaller parts of Virginia and Tennessee has been the classic area of White poverty in the United States. Initially, the Cumberland Plateau was settled by comparatively poor settlers who saw its timber, water, game, and cheap (even free, albeit hilly) land as ideal for their desire to have land of their own and a place removed from authority, slavery, and the wealthier classes. Ultimately, after the Civil War, some of the timber in the area became commercially valuable and the area was affected by its cutting. About the same time, coal was found in the region, and mining began with the attendant acquisition of large land holdings by investors outside the region, a pattern which continues to the present day.

Although mining brought new employment opportunities to area residents, the early history of mining in the region was characterized by exploitation of workers, low wages, and company towns.[15] The region seemed to be a clear case of the exploitation of a rich natural resource failing to produce prosperous communities or equitable distribution of wealth. Labor strife--often violent--has been almost constant in the mining industry. And, especially since the introduction of strip mining, parts of the subregion form a textbook case of environmental abuse.

During the twentieth century, the mining industry has brought intermittent growth and decline in mining employment with the boom and bust cycles typical of the industry as a whole. The most recent boom in mining occurred during the 1970s when the energy crisis precipitated expansion of coal mining in the United States.

When mining began in the region at the turn of the century, people in the area already had very high rates of poverty and in the census of 1900, the region (and related parts of the Southern Blue Ridge Mountains) had the highest incidence of White illiteracy anywhere in the United States, except for equal levels in French Louisiana. However, while incomes have improved and poverty rates have declined in the region since then, the area remains one of the poorest in the nation as a whole.

In the 1970s, as a result of the energy boom, mining jobs more than doubled in the major coal mining counties in eastern Kentucky and new trade and service jobs also appeared. During the same time, poverty in the area also declined. The pace of reduction in poverty in the poorest areas of the Southern Appalachian region (the tristate coal fields) was in fact the most rapid found in any region or sector of the nonmetropolitan United States from 1970 to 1980. Poverty rates in the 1980 census were more than 40 percent lower than those ten years earlier. This was far better than that observed among other rural groups with chronically high poverty, such as Delta Blacks, southwestern Hispanics, and western Indians. Nevertheless, despite these impressive gains, poverty rates in the mining counties still average over 20 percent, well above the national average and the average for all nonmetropolitan counties, whether natural-resource-related or not.

Although the gains made during the 1970s are impressive, the instability of the mining industry makes these gains tenuous at best. Already since 1980, coal production and income have declined as a result of the recession, and unemployment in the coalfields still averaged 23 percent during the first half of 1983. A disappointing feature of the employment boom in the mining counties during the 1970s was, in fact, the absence of development in other industries whose creation will be necessary to maintain the employment and income gains made in the area when mining declines. For example, from 1970 to 1980 when mining jobs doubled in the major eastern Kentucky mining counties, manufacturing employment actually declined by 4 percent in the same counties. In sharp contrast, a contiguous group of nonmining counties achieved a better than 60 percent increase in manufacturing work during the same period. This lack of economic diversification in the mining region makes long-term improvements in employment and income difficult as few alternative job opportunities are available in the area during the downturns so common in the mining industry.

It is also important to note, however, that rural poverty in Appalachia is not limited to the mining counties. In fact, poverty rates tend to be higher in the noncoal parts of the subregion that they are in the most highly commercial coal counties. In central southern Kentucky, county poverty rates regularly run from 20 to 35 percent, but with only 1 or 2 percent of employment in mining of any kind.

A historically small-scale tobacco and livestock agriculture in these counties and neighboring Tennessee has been supplemented with low-wage manufacturing, most notably female work in clothing plants. Thus, southern Appalachian rural poverty extends beyond the mining region itself and is also associated with subsistence small-scale agriculture and low-wage manufacturing work.

The Mississippi Delta

The alluvial flood plain of the Mississippi is the richest farmland in the Lower South stretching about 500 miles from the Missouri Boot Heel to southern Louisiana. Yet it has been an archtype of the Rich Land, Poor People syndrome, to use the title of Stuart Chase's old book. From the beginning of settlement prior to the Civil War, to its fuller development in the twentieth century, the Delta was preeminently the home of the plantation. Large-scale farms were operated first by slaves, next by share croppers, and more recently by hired workers. With exceptions, the area has been characterized by White capital and Black labor.

With the modernization of farming after 1940, heavy outmigration of Blacks took place. Nonfarm development has been inadequate and the population has declined--even in the 1970s--despite a relatively high birth rate. Poverty rates in the Delta are among the highest in the nation. (It has one of the two counties remaining in the United States where the total poverty rate was still above 50 percent in 1980). Why should this be so, when the quality of the soil and water resources is equal to most parts of the Midwest, where equally heavy farm dependence and outmigration are not accompanied by widespread poverty?

There are aspects of the situation that are puzzling, but clearly the racial aspect is central. Poverty rates run better than 50 percent for Blacks in most all Delta counties, but seldom more than 12 to 16 percent for Whites. This is an enormous difference. The Delta has long served the White elite well. In 1900, literacy rates among Delta Whites were comparable to those in the Midwest and better than almost anything found in the South Atlantic States. But Blacks have had almost negligible control over resources (and have not done especially well where they did have, as in Mound Bayou). The legacy of sharecropping, exploitation, and the era of White supremacy is very much present in the Delta.

Even so, this does not explain one Delta riddle. Why is it that Black poverty rates in the Delta are consistently 10 to 15 percentage points higher than those for Blacks in other counties of the same states--counties that are distinctly poorer in their agricultural base? Have the non-Delta counties industrialized more? Perhaps, but not all that much. Is it because the proportion that Blacks comprise of the whole population is higher in the Delta? And if so, why does proportionate massing of

Blacks lead to greater rural Black poverty? (The same situation is observed in Alabama where Blacks in the Black Belt have higher poverty rates than those outside of it). Perhaps one factor is that in counties with a low to moderate percentage of Black population, the presence of higher income Whites provides more employment in trade and service work for Blacks than is available in counties where poor rural Blacks are a majority of the population.

It could be argued that a logical but radical reform in the Delta would be land redistribution or some form of agricultural profit sharing for the workers. There are many plantations large enough to be subdivided into viable smaller units. Yet today, the percentage of Blacks still working in agriculture in the Delta is too small for agricultural reform to solve the bulk of the Delta's poverty problems. Whereas in 1950 fully three-fourths of employed Blacks in the Delta worked directly in agriculture, by 1980 only 14 percent did so--a truly extraordinary change in thirty years.

A major problem is the low level of labor force participation by Black men and the lack of year-round work for those who are employed. In the whole Delta, only 53 percent of Black males sixteen years and over were in the labor force in 1980, compared with comparable national figures for nonmetropolitan males of 72 percent for Whites and 60 percent for Blacks. Furthermore, in the great majority of Delta counties less than 30 percent of Black men who had some income had year round work. By contrast, in no county did less than 40 percent of White men with income have year-round work.

Labor force participation rates were not at all low by national standards for Black women, nor were the income levels of fully employed Black women radically out of line with those for White women. But, as a group, Black Delta men have low participation in the work force, very low frequency of full-time work, and much lower pay than Whites when they do have full-time work. As a wry irony it can be noted that if one wanted to point to the area of the United States in which incomes of female full-time workers most closely approach those of men it would be among Blacks in the Mississippi Delta. They do so, however, not because women's income is so good, but because the earnings of Black men in the area are so abysmal.

In addition, certain structural features of the Black population there make any development approach difficult. Less than half of all Black children under eighteen in the Delta are living with two parents, even when stepparents are counted as parents. The female-headed family with children seems to be the most vulnerable to poverty of all family units. Most such women lack adequately remunerative employment, and summaries of research seem to show comparatively poor social performance by children in such families.

In sum, the Delta is an example of a rural region with an outstanding land base for farming where there has been great stratification of society and a total failure to translate enviable resources into broad-based prosperity and social stability, or to make a successful transition from labor-intensive farming to a diversified economy with adequate employment.

Many of the same comments could be offered about the Black Prairie area of Alabama and Mississippi (often called the Black Belt). The land base there is not as desirable in the post-cotton era as the Delta. But there, too, the descendants of Black plantation workers whose comparative isolation, repressed state, and backwardness were well known in the past seem to be stranded in an area where they have demographic dominance and some local governmental control, but lack land ownership or adequate nonagricultural development.

Texas High Plains

An emergent rural poverty situation closely linked with resource development has come to the Texas High Plains. This discussion focuses on a nineteen-county area in western Texas. The High Plains of this region are level-to-gently rolling and have good soils that are very productive when they have sufficient water. This was the last part of Texas to be settled. As late as 1900 there were not more than 15,000 people in the whole area. At first, ranching developed. Then in the 1920s there was rapid settlement by farmers using dry farming techniques for cotton (where weather was warm enough) and wheat. For the most part this was successful. The settlers were almost all Anglo Whites, typically coming in from areas of Texas and Oklahoma to the east. A comparatively classless society developed (prosperous except during the 1930s droughts) that was more like Midwestern rural society than anything else in the South. The standard of living as measured by modernization and conveniences, as well as farm mechanization, was far above other areas of the South.

In the 1940s irrigation began, setting off new boom times and greatly altering agriculture. This change has only recently reached what appears to be its limits. It was found that the great underground reservior that underlies the area (the Ogalalla Acquifer) could be profitably tapped. Irrigation greatly increased the yields of the traditional wheat, cotton, and sorghum crops. In addition it made possible the introduction of corn, and even soybeans and sugar beets. The new abundance of feed grains led to cattle feeding and formation of some of the largest feed lot operations in the country. In turn, the process was further integrated by establishing meat packing. One indication of the magnitude of change can be seen in the amount of irrigated cropland, which went from 350,000 acres in 1944 to 3,800,000 acres in 1978.[16]

All well and good. However, the irrigated farming required much more labor--much of it sheer drudgery--than had previously been required on individual farms. The feeding operations also led to more demand for farm labor. The local supply of people able or willing to do this work was inadequate. The solution was to bring in hundreds and ultimately thousands of Mexicans and Mexican-Americans (and much smaller numbers of Blacks). For these people, the work prospects were clearly better in the High Plains than in the areas they came from. But, such migrants became comparatively concentrated in farm and related labor. The change in the ethnic composition has been major. In the nineteen counties here considered (which consist of those having 100,000 irrigated acres or more in 1978, excluding Lubbock), the Hispanic population went from 7,000, or 4 percent of the population in 1950, to 68,000, or 29 percent of the total in 1980.

The poverty rate in these counties in 1979 was 20 percent--well above the U.S. nonmetropolitan average. Even so, the rate for Whites was just 11 percent, while that for Hispanics was 38 percent. Although the overall poverty rate in the area decreased somewhat during the 1970s--a time of general prosperity and increasing transfer payment supplements to the income of poor people--the decline in poverty was definitely less than the average decline for U.S. nonmetropolitan population. In three of the counties the poverty rate actually increased during the decade.

The addition of the water resource development to the previous form of land use has sharply increased the value and volume of agricultural production. But it has transformed a relatively equalitarian society into one that has a large (albeit progressing) underclass, based on the utilization of a poor ethnocultural minority for unskilled labor.

East of the High Plains is an equally large area known as the Rolling Plains. This area is not as well suited to farming as the High Plains. The topography is not as level and there is not nearly as much irrigation water available (only 100,000 acres total). But other than some oil and gas there is little else to the economy. So the population has been dropping in most counties for the last forty to fifty years, including the 1970s. In the past, the area showed somewhat lower scores on income and other socioeconomic measures than did the High Plains. It is clearly under stress because of the inadequate employment opportunities associated with the current state of its natural-resource-based economy. Yet because of the high poverty rates among the Hispanics of the High Plains irrigated counties, the Rolling Plains now show a lower incidence of poverty than do the High Plains (17.6 percent versus 20.3 percent). Each area has a serious resource-related economic problem, but the comparative presence or absence of irrigation has shaped the problems differently.

SUMMARY

The dependence of communities on the natural-resource industries of farming, mining, and forest products and the levels of poverty vary by region, type of employment, and ethnocultural background. No matter what the nature of the activity, natural-resource areas in the South typically have poverty rates well above the national average and far above those in most of the West. These problems are particularly serious in the Southern Appalachian Plateau country, the Mississippi Delta, and analogous old plantation areas of the Lower South. In addition, certain areas of the Southwest and northern Great Plains also exhibit poverty and natural-resource linkages.

Poverty rates are very high among hired farm workers, whose wage rates and duration of work are low, and who are drawn disporportionately from poorly educated, disadvantaged, or minority-race segments of the population. In the mining industry, the contrast between Appalachian and Western poverty is striking--about a two-to-one ratio.

The chapter reviews three examples of different ways in which natural resource use--past and present--have shaped current poverty conditions. These differences must be understood if intelligent approaches to remedial policies are to be made. The cases described are (1) the Southern Appalachians, referred to above, where both mining and farming have long been embedded in a high incidence of poverty, low education, poor health, and generally inadequate lvels of living among a White population; (2) the Mississippi Delta, where although the great majority of Blacks are no longer in natural-resource work, the legacy of deep poverty derived from earlier generations as sharecroppers and slaves persists in stark income contrasts between Blacks and Whites; and (3) the Texas High Plains, where the modern development of intensive irrigated farming has transformed the composition of the population through the introduction of a large and growing minority of Hispanics who have perceived a relative advantage in coming to the area, but whose poverty rates clearly reflect the failure of agricultural industry to yield them adequate incomes.

NOTES

1. Vera J. Banks and Judith Z. Kalbacher, Farm Income Recipients and their Families: a Socioeconomic Profile Rural Development Research Report 30, U.S. Department of Agriculture, Economic Research Service, (September 1981) p. 5.
2. Leslie A. Whitener, "Hired Farm Labor Data from the Decennial Census: Limitations and Considerations" (Unpublished paper, Economic Research Service, U.S. Department of Agriculture, August 1983).
3. Susan L. Pollock and William R. Jackson, Jr., The Hired Farm Working Force, 1981 Agricultural Economic Report 507, U.S. Department of Agriculture (November 1983) p. 3.
4. Ibid., p. 30.
5. U.S. Department of Labor, Bureau of Labor Statistics, Supplement to Employment and Earnings (July 1983) p. 19.
6. Unpublished data from the U.S. Department of Labor, Bureau of Labor Statistics.
7. U.S. Department of Commerce, Bureau of the Census, County Business Patterns 1981 United States, CBP-81-1 (July 1983) tables 1A and 1B.
8. Ibid., table 1B.
9. U.S. Department of Agriculture, Report of the USDA Task Force and Black Farm Ownership (September 1983) p. 8.
10. U.S. Department of Agriculture, unpublished figure derived from special tabulations of the 1978 Census of Agriculture.
11. U.S. Department of Agriculture, Report of the USDA Task Force, p. 13-14.
12. U.S. Commission on Civil Rights, The Decline of Black Farming in America (Washington, D.C., Government Printing Office, 1982).

13. Leslie Whitener Smith and Robert Coltrane, Hired Farmworkers: Background and Trends for the Eighties, Rural Development Research Report 32, U.S. Department of Agriculture (September 1981) p. 8.

14. It is ironic that Greenlee County, Arizona, which has one of the very highest income levels and, thus, lowest poverty rates for rural and small town Hispanics, has for the last year been the scene of bitter violence with much strike-related unemployment and increased poverty. The economy of this remote area is heavily dependent on copper mining and processing.

15. See for example, John Gaventa, Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley (University of Illinois Press, 1980).

16. U.S. Department of Commerce, Bureau of the Census, 1950 Census of Agriculture Vol. 1, Part 26 (1960) Texas, county table 1a; and 1978 Census of Agriculture, Vol. 1, Part 43 (1979) Texas, county table 3.

4

Ownership of Natural Resources

INTRODUCTION

The opportunities natural-resource development provides for the improvement of incomes of poor rural residents and the economic and social well-being of rural communities depend, in an important way, on the control and ownership of property rights to those resources. To a large extent, those who own and control natural resources determine current patterns and future options of development, which in turn affect the allocation of benefits resulting from such development. In addition, ownership and control of resources influence the distribution and exercise of wealth and power.

It is also important to note, however, that the ownership and control of resources alone are insufficient to generate economic benefits from natural resources. While ownership of resources is a determinant of income and wealth, natural resources by themselves are of little economic value until they are combined with the complimentary inputs of capital, labor, technology, and entrepreneurship. A definition of natural resources developed by Marion Clawson is instructive in this regard. "′. . . a definition of natural resources . . . includes four parts; (i) any quality or characteristic of nature, (ii) which we know how to use, (iii) economically, and (iv) to a desired end.′ . . . It is the combination of natural features with the inputs of knowledge, entrepreneurship, labor, and capital which creates resources" (see the Clawson paper).

As Clawson has further stated, three crucial points follow from this definition that have a bearing on the relationship between poverty and resources and the potential for improving incomes of the rural poor through natural-resource development.

1. What is a "resource" to one owner or user may not be to another owner or user, if the latter lacks one or more of the essential complimentary inputs.

2. A shortage of "resources" may measure a shortage of the necessary input factors as much as, or more than, it measures a shortage of the natural features.

3. More land, forests, minerals, or water for some resource owner or user would not necessarily much increase the annual income potential of such owner or user if the complimentary inputs remained in limited supply (the Clawson paper, p. 7).

Furthermore, when discussing the ownership of natural resources it is important to keep in mind that the sheer size of a resource holding may not be highly correlated with its economic value. The quality of the resource itself rather than its mere size is much more important in determining its true value. For example, the value of an acre of highly productive agricultural land is much higher than an acre of grazing land. Therefore, comparisons based on size alone are at best crude measures of the concentration, or lack thereof, of resource ownership. "Ideally natural resource ownership should be compared with some concept of optimum economic unit . . . but economic units change over time, as well as between locations, and comparisons of actual ownership to concepts of optimum economic units are at best difficult" (the Clawson paper, p. 11).

Even though size alone is not the perfect economic measure of resource ownership, in the following discussion, we are forced by the limitations of the data to summarize what we know of resource ownership mostly by size alone. Even then, however, ownership data on land and other natural resources have been among the weakest and least available of all data concerning such resources (the Clawson paper). We know far more about the other characteristics of natural resources than we know about their ownership.

The question "who owns the nation's lands and other natural resources?" has come under increasing scrutiny during the past few years. Public interest in resource ownership has been precipitated, to a large extent, by concern over the environmental impacts of natural resource development, the role of corporate farming, foreign ownership, and the presence of large corporations in mineral extraction and land development. These concerns have led to recent efforts to examine and document land ownership patterns in the United States.

A comprehensive study on land ownership by the U.S. Department of Agriculture in 1978 documented in some detail the ownership patterns of rural land. Although the focus of the study was on agricultural land, an effort was made to include all rural lands and their uses (the Clawson paper). Another recent study of land ownership was sponsored by the Appalachian Regional Commission and was coordinated by the Landownership Task Force of the Appalachian Alliance. The study documented land ownership patterns in a six-state (Alabama, Kentucky, North Carolina, Tennessee, Virginia, and West Virginia), 80 county region in Appalachia and discussed the economic and social impacts of ownership concentration on the region's rural residents and communities.[1]

OWNERSHIP OF LAND

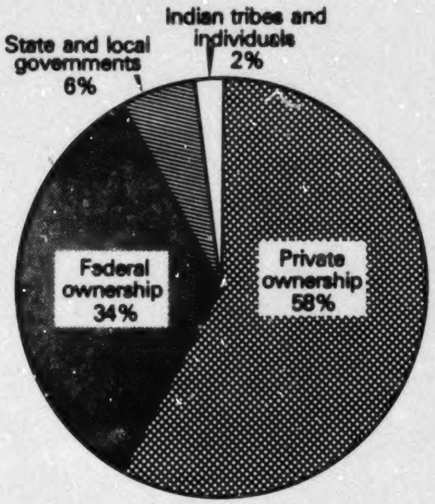
The largest single owner of land in the United States is the federal government. In 1978, federal lands accounted for 34 percent, or about 762 million acres, of the total U.S. land surface (see figure 4-1). Federal land ownership is most prevalent in the western United States where more than half of the land in five states is owned by the federal government--86 percent in Nevada, 64 percent in Utah and Idaho, 60 percent in Alaska, and 53 percent in Oregon.[2]

Public lands are used for a number of different purposes: recreational activities, the preservation of wildlife and wilderness areas, and the protection of natural and historic sites. In addition, publicly owned resources supply commercial raw materials. In 1976, federal timber provided about 21 percent of the U.S. timber harvest. And, federally owned coal is providing an increasingly larger portion of the total U.S. coal production. The recent growth in the nation's coal production has occurred primarily in the western states, where the federal government owns about 60 to 70 percent of the coal reserves.[3]

While the federal government is the largest single land owner in the United States, over half of the total land surface is privately held (see figure 4-1). The following discussion will focus on private ownership of natural resources with the inclusion of a discussion of lands held in for Native Americans.

The 1978 U.S. Department of Agriculture (USDA) survey provides the most comprehensive information on U.S. private land ownership currently

Figure 4-1. Ownership of U.S. Land, 1978



Source: Janes A. Lewis, Landownership in the United States, Agricultural Information Bulletin No. 45, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service (April 1980) p. 3.

available. The study reported that there were nearly 34 million owners of privately owned land of all kinds who possessed a total of 1,347 million acres, or an average of 40 acres per owner (see table 4-1). The vast majority of owners, however, held relatively small acreages of land, and thus the concentration of landownership becomes evident when those with the smallest acreage holdings are excluded. For example, when one excludes the 26 million landowners who have less than 10 acres each, the remaining slightly more than 7 million owners had an average holding of nearly 180 acres each (see the Clawson paper). The top 4 percent of land owners held over 70 percent of all land compared to the bottom 78 percent of land owners who owned slightly over 3 percent of the nation's private land (see table 4-1).

Not surprisingly, farmers (2.6 million or about 8 percent of all landowners) owned the largest portion of all lands (46 percent) of any occupational category. Farmers, as a group, owned 500 million acres, or on the average 200 acres each. Retired persons, along with white collar and blue collar workers (about 74 percent of all owners), owned approximately 41 percent of all land, or approximately 20 acres each. The remaining 12.6 percent of all land was owned by miscellaneous others (see figure 4-2).

About 90 percent of all landowners were individuals and families owning over 65 percent of all land. Family partnerships and family corporations (approximately 4 percent of all owners) held an additional 15.7 percent of all land. Nonfamily partnerships and corporations owned about 13 percent of all land, although they constituted only 3.7 percent of all owners. The remaining 4.4 percent of land was owned by miscellaneous others, including estates (2.3 percent of all owners) (see figure 4-3).

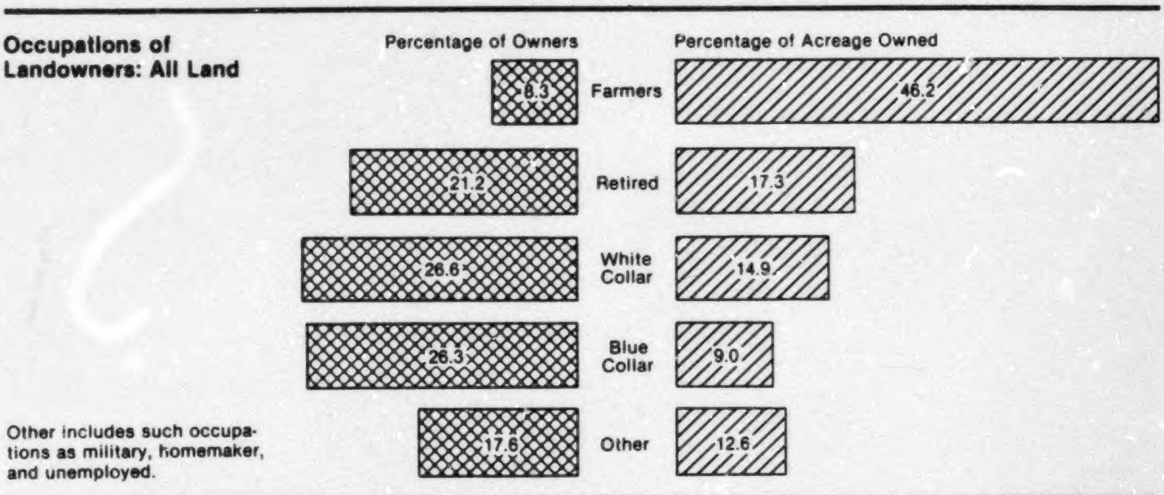
Table 4-1. Distribution of Land and Size of Total Holdings, United States, 1978

Acreage of holding	Owners			Acres owned			Average acreage of holding
	Thousands	Percent	Cumulative %	Thousands	Percent	Cumulative %	
1 - 9	26,435	78.5		46.2	3.4		2
10 - 49	3,300	9.8	88.3	77.7	5.8	9.2	24
50 - 69	585	1.7	90.0	33.8	2.5	11.7	58
70 - 99	820	2.4	92.4	66.9	5.0	16.7	82
100 - 139	608	1.8	94.2	69.8	5.2	21.9	115
140 - 179	568	1.7	95.9	89.7	6.7	28.6	158
180 - 259	477	1.4	97.3	102.6	7.6	36.2	215
260 - 499	522	1.5	98.8	183.4	13.6	49.8	351
500 - 999	235	0.7	99.5	160.4	11.9	61.7	683
1,000 - 1,999	88	0.3	99.8	117.1	8.6	70.3	1,331
2,000 - 2,999	24	0.1	99.1	57.3	4.3	74.7	2,388
3,000 - 4,999	17	a		61.8	4.6	78.3	3,635
5,000 - 9,999	11	a		70.5	5.2	83.5	6,409
10,000 or more	8	a		210.0	15.6	99.1	26,250
Total	33,748	100.0		1,347.2	100.0		40

Source: James A. Lewis, Landownership in the United States, 1978, Agricultural Information Bulletin No. 435, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service (April 1980), p. 15.

[a] Less than 0.05 percent.

Figure 4-2. Occupations of All Landowners: All Land, 1978.



Other includes such occupations as military, homemaker, and unemployed.

Source: James A. Lewis, Landownership in the United States, Agricultural Information Bulletin No. 45, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service (April 1980) p. 7.

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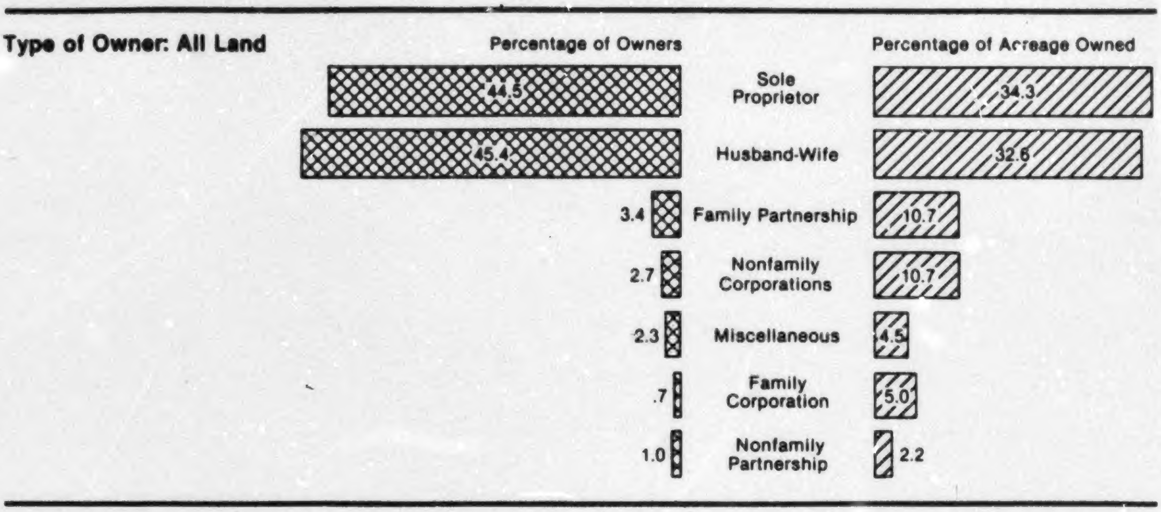
Figure 4-3. Type of Owner, 1978



Source: James A. Lewis, Landownership in the United States, 1978, Agricultural Information Bulletin No. 45, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service (April 1980) p. 4.

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As pointed out by Clawson, the data on land ownership by minorities are weak in the USDA survey. The study identified a little over 1 million, or 3.7 percent of all owners, as Black. As a group they owned on the average less than 9 acres each or less than 1 percent of the total land area.

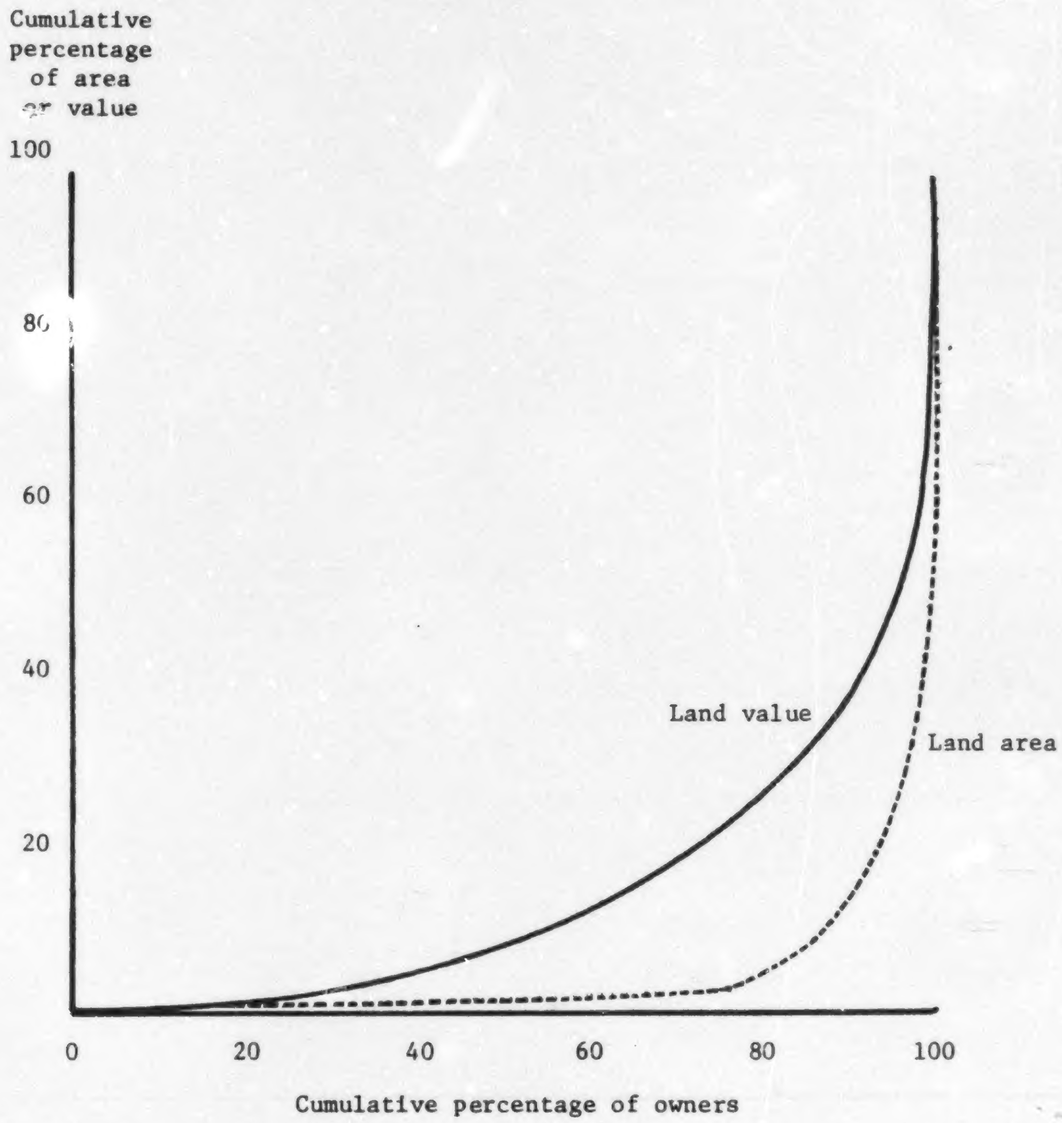
Black land ownership has dramatically decreased during the 1900s. For example, Black farmers lost a net of 12 million acres between 1920 and 1978. Some of this land is still no doubt owned by Blacks who are not farming and some is no longer considered farmland. However, a large amount was bought by Whites or others from Black farmers and their heirs. The total Black landownership today (10 million acres reported in the USDA survey) is less than land owned by Black farmers alone in 1920 (see also the Williams, Morse, and Webber paper).[4]

Approximately 3 percent of all landowners in the USDA survey were Hispanics with an average holding of about 9 acres each (the Clawson paper). The survey excluded Indian reservations and thus the data pertaining to landownership by Indian Tribes is not available from the survey. We will return to this point later in this chapter.

The USDA data indicate a substantial concentration of ownership of all lands in the United States. Although data on land values were weak in the USDA survey, the data did show that this concentration of ownership appears to be more marked on an acreage than on value basis (see figure 4-4).

In addition to the USDA survey, the Appalachian Landownership Study, mentioned previously, provides regionally specific information on land ownership.[5] The study indicates considerable concentration of land ownership in Appalachia. It is most concentrated in counties with coal

Figure 4-4. Concentration of Ownership of All Land as Measured by Acreage and by Value, 1978



Source: Marion Clawson, "Ownership Patterns of Natural Resources in Rural America: Implications for Distribution of Wealth and Income." Paper presented at a workshop on "Rural Development, Poverty, and Natural Resources," Airlie House, July 1983 (Washington, D.C., Resources for the Future).

reserves and least in the counties where agriculture dominates the economy. Corporate ownership of land is prevalent throughout the region.

The study reported that the top 5 percent of all owners held 62 percent of the 13 million acres of land surface sampled. Corporate ownership constituted 40 percent of all surveyed land with an average holding of 1660 acres each. Corporately owned land covered 20 percent of the total land mass in the eighty-county survey area. In twenty-four of the eighty counties sampled, however, corporate-owned land accounted for more than half of the surface acres surveyed.

OWNERSHIP OF FOREST LAND

In 1977, about 61 percent of the nation's forest lands were in nonfederal ownership. This includes mostly privately owned lands but also state and municipal lands. Private ownership of forest lands is concentrated in the eastern United States, where federal ownership accounts for only 9 percent of all forest lands, in contrast to the western region of the country, where federally owned forest lands constitute 72 percent of the total.[6]

The USDA survey on land ownership provided information about the ownership of private forest lands. Data on forest ownership were similar to those of all lands--a fairly large number of owners with the majority of owners holding relatively small acreages of forest land. For example, 71 percent of the owners of forest land had on the average less than 10 acres each, and 86 percent had less than 50 acres. In contrast, 78 percent of all forest land was in ownership units of 100 or more acres (see table 4-2 and the Clawson paper).

Table 4-2. Distribution of Forest Land by Size of Total Holdings, United States, 1978

Acreage of holding	Owners			Acres owned			Average acreage of holding
	Thousands	Percent	Cumulative %	Millions	Percent	Cumulative %	
1 - 9	5,528	71.3		11.0	3.3		2
10 - 49	1,164	15.0	86.3	28.1	8.4	11.7	24
50 - 99	464	5.9	92.2	32.9	9.9	21.6	71
100 - 499	538	7.0	99.2	102.6	30.8	52.4	191
500 - 999	40	0.5	100.0	26.9	8.1	60.5	673
1,000 - 9,999	21	0.3	--	47.6	14.3	74.8	2,267
10,000 +	2	a	--	84.0	25.2	100.0	42,000
Total	7,757	100.0	--	333.1	100.0	--	43

Source: Thomas W. Birch, Douglas G. Lewis, and H. Fred Kaiser, The Private Forest-Land Owners of the United States, U.S. Department of Agriculture, Forest Service Resource Bulletin WO-1 (1982) p. 36.

[a] Less than 0.05 percent.

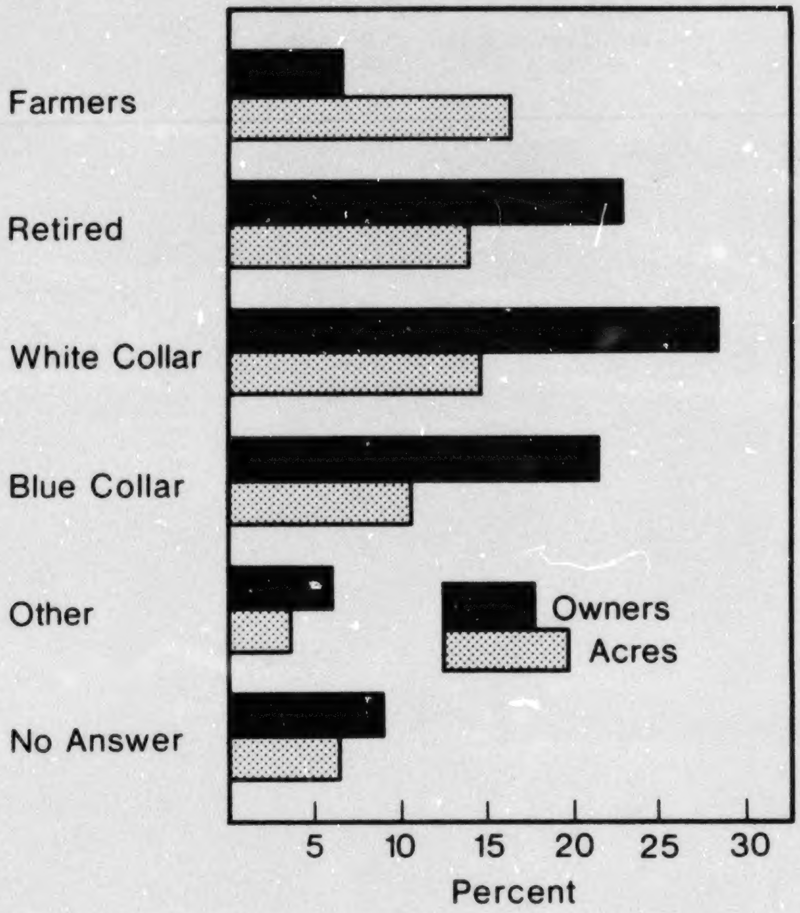
In 1978, ownership of private forest land by occupational category and type of ownership are presented in figures 4-5 and 4-6, which show an ownership pattern similar to the data on ownership of all lands. The major exception was the amount of forest land owned by nonfamily corporations. Despite the relatively small percentage of all owners (2.5 percent), nonfamily corporations owned 27 percent of the private forest lands. More than half of the forest land owned by corporations was located in the South, where corporations controlled 28 percent of the private forest land. Corporate ownership of forest resources is also significant in the Pacific Northwest where corporate ownership accounted for over half of the private forest land in the region.[7]

OWNERSHIP OF MINERAL RIGHTS

There is no source of information on mineral ownership comparable to the information provided by the USDA survey on land ownership. The lack of such data is partly due to the fact that the owners of minerals are not always willing to make public the information they have on mineral deposits. Since surface area is only marginally important for the consideration of mineral ownership, data on land ownership cannot be used as a proxy for mineral owners.

In addition, in some instances a split ownership of mineral deposits and land surface exists. This situation is particularly prevalent in the western United States where ranchers and farmers hold title to the land surface but where mineral rights are held by the federal government. This ownership pattern of the region's land and mineral deposits dates back to

Figure 4-5. Occupations of Forest Landowners, 1978



Source: Thomas W. Birch, Douglas G. Lewis, and H. Fred Kaiser, The Private Forest-Land Owners of the United States, U.S. Department of Agriculture, Forest Service Resource Bulletin WO-1 (1982), p. 12.

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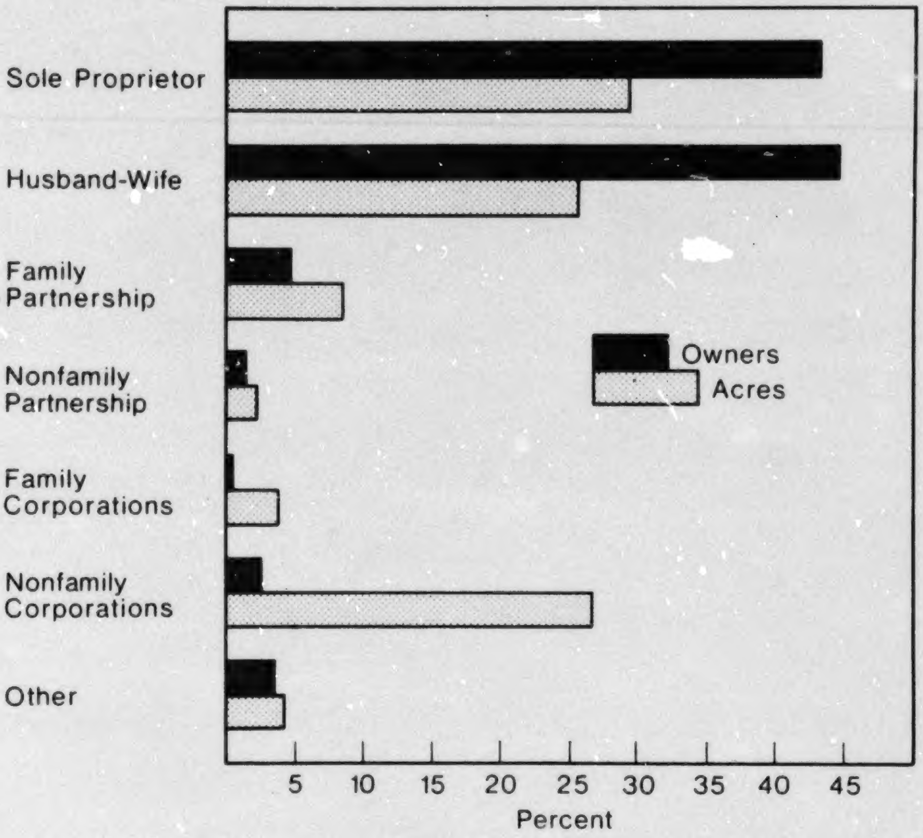
Figure 4-6. Type of Owner, Forest Land, 1978



Source: Thomas W. Birch, Douglas G. Lewis, and H. Fred Kaiser, The Private Forest-Land Owners of the United States, U.S. Department of Agriculture, Forest Service Resource Bulletin WO-1 (1982), p. 10.

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the period when the West was settled by homesteaders. When the land was given to settlers, mineral resources were not included in the homesteads, and the federal government reserved mineral rights to itself creating a split ownership of surface land and underground mineral resources. A large portion of mineral rights is also held separately from the surface land in Appalachia and is sold as a separate commodity.

Although nationwide, comprehensive data are not available on mineral ownership, it is safe to assume that the ownership of the nation's mineral deposits is concentrated in the hands of a relatively few corporations and wealthy individuals. Nearly all types of mineral development require large amounts of capital and technical expertise, thus making mineral exploration difficult, if not impossible, for the small owners (see the Clawson paper). It is also important to note here that many mineral resources are found on Indian reservations. We will turn to this point later in this chapter.

Concentration of corporate ownership of mineral resources is supported by the data from the Appalachian Land Ownership Study. The study reports that in 1980 of the 7 million mineral acres surveyed about 70 percent of the mineral rights were held by corporate owners in the eighty-county survey area.

Additionally, the study found a high overall concentration of mineral ownership throughout the region. The top 1 percent of the recorded mineral owners in the sample controlled 30 percent of the mineral rights, and the top 5 percent controlled 62 percent of the recorded minerals. Furthermore, a high proportion of the mineral owners were absentee owners. Of the 7 million acres of mineral rights surveyed, 79 percent were absentee owned--52 percent by out-of-state and 27 percent by in-state but out-of-the-county owners. Expressed in terms of the land surface included in the survey, 22 percent of the total surface area was underlain with absentee owned minerals.[8]

OWNERSHIP OF WATER RIGHTS

Data on water rights were also not included in the USDA survey and are not readily available from a single source. Since the federal government has not instituted a legal or regulatory framework to govern freshwater use, water laws and regulations vary from state to state. The nature of state water laws has changed over time and is greatly affected by the supply and the demand for water in various regions of the country.

There will be no attempt here to review the various state water laws and institutions. For purposes of this paper, however, two water rights issues should be mentioned, namely, the water rights of low-income Hispanics in the Southwest and Native Americans' claim to water. Access to and control of water, along with ownership of land, have been fundamental to both the social and economic existence of the Hispanic and Native American cultures.

Historically, water resources have been a key concern in the western United States, where a complex set of legal and political institutions has evolved to govern the use of water. As the demand for water has escalated because of energy development and rapid population and economic growth in the region, the established patterns of allocation, control, and management are under increasing pressures to change. Emphasis is shifting away from development to conservation, reallocation, and the enhancement of quality.

In the case of low-income Hispanic communities, the traditional use of water has been for irrigated agriculture. Such agriculture often provides part-time employment for men who hold jobs in nearby towns. This use of water is of low value economically, but carries with it important communal values. However, recent market and policy emphasis on economically efficient water use in the region has brought increased pressures for individual sale of water rights and has increased the need for rural Hispanic communities to carefully maintain their title to water and seek new ways to use water more effectively to generate greater economic benefits (see the Ingram, and coauthors paper and comments by Allen Kneese).

The second important water issue for purposes of this paper is Native American water rights, the exercise and maintenance of which have become closely intertwined with the question of western states' population and economic growth. In the region there are competing demands for scarce water resources among municipal, industrial, and agricultural uses. Throughout the water-scarce West, Indians are claiming title to substantial amounts of water and in recent years have began to exercise their long-dormant claims to water through litigation and other means. At present, disputes over water resources involve at least 60 western water basins and more than 100 Indian communities (see the Susan Williams paper and comments by John Folk-Williams).[9] These issues are also discussed in greater detail in the next section.

NATURAL RESOURCES AND NATIVE AMERICANS

In 1978, approximately 2 percent, or 51 million acres, of U.S. land was held by Native Americans (or was held in trust for them by the federal government) (see figure 4-1). Most of this land is concentrated in the Southwest and the Great Plains, where three tribes hold over half of all Indian lands. These are the Navajo, whose reservation contains over 21 million acres, or nearly 25,000 square miles, in Arizona, New Mexico, and Utah; the Sioux, whose reservations cover 6.4 million acres, or 10,000 square miles, in North and South Dakota; and the Apache whose reservations contain 4.5 million acres, or 7,000 square miles, in Arizona and New Mexico.

Substantial amounts of natural-resource wealth are located on Indian lands. For example, in 1980 commercial timber lands held by Indians provided an annual yield worth $732 million. During the same year 5 percent of the nation's oil and gas, 25 percent of the coal, and 100 percent of the uranium were produced from Indian lands (the Susan Williams paper). In addition, Indian water rights are probably the most valuable rights possessed by western tribes and hold the key to their ability to achieve economic independence, although the specific extent of these rights is still a matter of contention and litigation.

Despite the fact that Indians own substantial amounts of mineral and other natural resources, Native Americans continue to be among the poorest populations in America, as discussed previously. The development of the mineral wealth on reservations has not resulted in substantial improvements in the income and employment situation of Native Americans. Rather, much of the wealth generated has been removed from the reservations for the benefit of non-Indians. Because tribal governments have historically lacked the expertise and capital required for resource extraction, the exploration and development of mineral resources has required the presence of outside capital and non-Indian corporations. Agreements have often been signed with these entities without adequate guarantees for reservation-based investments and requirements for the use of Indian labor. Thus little progress has been made in increasing job opportunities or developing tribal management and operational expertise (the Susan Williams paper).

Although the ownership of mineral resources by Native Americans is not in dispute, the ability of Indian tribes to enter into more equitable agreements with non-Indian corporations is critical for the future improvement of tribal economies. In 1982, two important legislative and executive branch initiatives occurred that will assist tribes in this regard, namely, the Indian Mineral Development Act of 1982 and the Federal Oil and Gas Royalty Act of 1982.

The Indian Mineral Development Act authorizes tribes to enter into commercial agreements for the development and sale of their mineral resources. While these agreements continue to be subject to the approval of the Secretary of Interior, the Act allows tribes greater flexibility in contract negotiations and in maximizing the financial returns to the tribes and is intended to further tribal self-determination. The Federal Oil and Gas Royalty Management Act, in turn, is intended to improve the royalty management of the federal and Indian lands and requires new and more effective accounting and audit procedures (the Susan Williams paper). Such improvements in tribal management and authority over mineral development will not automatically result in new revenues to the tribes but they are important steps toward self-determination.

Although Indian ownership of mineral resources is not in dispute, the same cannot be said about Native American rights to water resources. In recent years, as water rights have become increasingly valuable and the demand for water has intensified throughout the West to support expanding population and economic growth, Indian tribes have begun to exercise their water claims well beyond the rights they currently control. Historically, when the federal and state governments allocated western water resources, little consideration was given to the future needs of Native Americans. Thus, present Indian water claims clash strongly with and threaten present water use patterns and practices, and the issue has become extremely sensitive politically. Indians have pressed their claims mostly through litigation, although attempts to reach negotiated settlements have also been tried. Few cases, however, have resulted in permanent solutions.

In recent years, issues affecting Indian water have expanded beyond those of water rights themselves to include new concerns such as the regulatory authority of tribal and state governments over reservation water resources, water quality issues, off-reservation water uses, ownership of river and lake beds, and Indian rights to water stored in federal reclamation projects.[10] The resolution of these issues as well as of water rights themselves will have important long-term consequences for the viability and expansion of the reservation economies.

Beyond the importance of water to reservation economies, water holds important symbolic value to Native Americans. Throughout history, Indians witnessed the loss of their lands to the dominant society as resource wealth was found on their lands. They now view the struggle for water in this historical context and are determined not to lose their entitlement to it. Thus Native Americans are willing to invest considerable monetary and human resources in the struggle over water resources. Still, the resolution to Indian water claims must take place in the wider regional context of increasing demand for water for municipal, industrial, and agricultural uses, and the settlements to the current disputes will have broad regional, if not national, impacts.[11]

SUMMARY

Historically, reliable and comprehensive information on the ownership of land and other natural resources in the United States has been limited. It was not until the last decade that increased public concern over the environmental impacts of natural-resource development led to systematic efforts to document and examine land ownership. In 1978, a comprehensive study on land ownership conducted by the U.S. Department of Agriculture documented ownership of all rural land, and a study sponsored by the Appalachian Regional Commission in the early 1980s surveyed land and mineral ownership patterns in a six-state, eighty-county region in Appalachia.

Both studies showed a substantial concentration of land ownership. The USDA study, although identifying a large total number of land owners, showed that the vast majority of owners had relatively small holdings and that the top 4 percent owned 70 percent of all land. This ownership pattern was true for both forest and farmland.

The Appalachian land ownership study in turn showed high concentration of both land and mineral ownership in the Appalachian study region, including large corporate holdings, particularly in the mining counties. Corporate ownership of mineral deposits is not surprising because nearly all types of mineral development require large amounts of capital, thus making mineral extraction difficult for individual entrepreneurs and small companies. Although nationwide data are not available on mineral ownership, a high concentration of ownership is likely to be a pattern throughout the United States.

Information on water rights is also not readily available. Water laws and regulations vary from state to state and are greatly affected by supplies available in a given region. In the context of this paper, the most important issue regarding water rights is Native American water claims. Throughout the West, Indian tribes have begun to exercise their historic water rights through litigation and other means. The resolution of Indian water claims will have broad regional, if not national, impacts and will require resolution of difficult legal and equity issues. In addition to resolving Indian water claims, the future well-being of Native Americans will be greatly affected by the way in which natural resources located on Indian lands are developed in the future.

NOTES

1. The Appalachian Land Ownership Task Force, Who Owns Appalachia? Land Ownership and Its Impacts (Lexington, Ky., The University of Kentucky Press, 1983).
2. Robert H. Nelson, "The Public Lands," in Paul R. Partney, ed., Current Issues in Natural Resource Policy (Washington, D.C., Resources for the Future, 1982) p. 16.
3. Ibid., p. 20-21.
4. Calvin L. Beale, "Black Farmers and Their Farms," unpublished document, U.S. Department of Agriculture, 1983.
5. The Appalachian Landownership Study examined land and mineral ownership records in a eighty-county region covering six states (Alabama, Kentucky, North Carolina, Tennessee, Virginia, and West Virginia). A total of 55,000 parcels of land were researched in courthouse records representing 13 million acres of surface land and 7 million acres of mineral rights. The survey recorded all corporate, public, and absentee owners who owned more than 250 acres in the unincorporated portions of the survey counties. The survey contained 53 percent of the total land surface in the eighty counties.
6. U.S. Department of Agriculture, An Assessment of the Forest and Range Land Situation in the United States (October 1981) pp. 15-19.
7. Thomas W. Birch, Douglas G. Lewis, and H. Fred Kaiser, The Private Forest-Land Owners of the United States, U.S. Department of Agriculture, Forest Resource Bulletin WO-1 (1982) p.11.
8. The Appalachian Land Ownership Task Force, Who Owns Appalachia?, pp. 14-35.

9. John A. Folk-Williams. What Indian Water Means to the West: A Sourcebook, (Sante Fe, New Mexico, Western Network, 1982), p. 2.

10. Folk-Williams, What Indian Water Means to the West, p. 2.

11. For a more thorough discussion of Indian water issues, see the Ingram and coauthors paper; the Susan Williams paper; comments by John Folk-Williams; John Folk-Williams, What Indian Water Means to the West; and Allen V. Kneese and F. Lee Brown, The Southwest Under Stress: National Resource Development Issues in a Regional Setting (Baltimore, Md., The Johns Hopkins University Press for Resources for the Future, 1981).

Summary

The relative importance of natural-resource industries in the rural economy has declined dramatically during the last three to four decades. By 1980, the combined employment in agriculture, fishing, mining, forestry, logging, wood products, paper, and food processing had dropped to only 16 percent of all rural employment from over 40 percent in 1950. Decentralization of manufacturing, beginning in the 1960s, and large expansion in the service and trade sectors of the rural economy during the 1970s, have made these industries the leading employers of all rural workers today. As a result, the industrial composition of the rural economy has greatly diversified and become more like that of urban areas, thus integrating the two to a greater extent than ever before.

The impact of the diversification of the rural economy is particularly noticeable in the eastern United States where only a relatively small percentage of nonmetropolitan counties shows continued dependence on natural-resource-based activities. The remaining eastern natural-resource counties include the Appalachian mining region and scattered areas in parts of New England and the Southeast where a combination of timber, agriculture, and food processing dominate natural-resource activities.

In the Great Plains and the Northwest regions of the United States, however, natural-resource activities continue to dominate employment in the majority of nonmetropolitan counties. In the Great Plains, from North Dakota to Texas, agriculture is the dominant resource activity with some scattered mining areas filling the gaps. In the western region, timber is added to agriculture and mining employment in the mix of resource activities.

Thus, although employment in natural-resource-based industries in rural areas accounts for only 16 percent of all rural employment nationally, we find that natural-resource-based activities continue to make important contributions to local economies in particular regions of the country. Forty-four percent of all nonmetropolitan counties, concentrated primarily in the midwest and northwest sections of the nation, show continued dependence on natural-resource industries. These counties contain 15.3 million people, or 27 percent of the total nonmetropolitan population. Therefore, while the economy in large parts of rural America is unaffected by natural-resource development and more dependent on general economic trends and policies, in certain regions of the country the viability of rural communities and their residents continues to be greatly affected by agricultural, mining, and timber industries.

It is evident from the data discussed in chapter 3, that there is no major overall direct causal relationship between natural-resource activity and rural poverty. There is a level of poverty in natural-resource-dominated counties (17.0 percent) that is somewhat higher than that in other nonmetropolitan counties (14.9 percent). This is enough of a difference to merit attention. It implies that at least 300,000 more low-income persons live in these counties than would be the case if natural-resource counties had the same levels of poverty as other nonmetropolitan communities. But it does not begin to compare with the differential rates of poverty that can be identified by race or by ethnic and cultural groups (Blacks, Native Americans, Hispanics, Appalachian or

Ozark Highlanders contrasted with non-Hispanic, non-Southern-Highlander Whites), or by household composition (female-headed families with minor children versus husband-wife families). The poverty-prone populations identified in this manner have poverty rates that are consistently one to two times higher than those of the rest of the nonmetropolitan population.

The natural-resource focus does become relevant, however, if the people associated with this major sector of the rural economy are disaggregated by regional, occupational, or other characteristics. Several groups stand out in this regard:

- agricultural labor
- people in the coal mining and agricultural resource-related areas of the Southern Appalachians
- rural Blacks of the southern Coastal Plain and the Mississippi Delta where the natural-resource link has been substantially broken, but whose persistent poverty is partly the legacy of the sharecropping era
- Indian communities in the Great Plains and the West whose lands contain a partly developed mineral base and where the potential for such development exists in the future.

AGRICULTURAL LABOR

How to elevate the condition of hired farm workers is an old and ubiquitous problem, seemingly independent of time, place, or political systems. Poverty levels among hired farm worker households have been high throughout history. In 1981, the poverty level among the group was estimated to be over 30 percent.

Most farm worker jobs have been effectively stigmatized by society, being among the very last deemed worthy of conventional social protection programs. Wage levels have been such as to attract few people with educational claims to better-paid employment. Except in the grain and livestock economies of the Midwest, farm laborers have been drawn heavily from disadvantaged ethnic groups including many foreign born. In such cases--especially in vegetable, fruit, and irrigated farming in general--there are decided elements of class conflict in operator-worker relationships. Hired farm work is particularly important for rural Hispanics, among whom it provided nearly a fourth of all jobs for men in 1980.

Part of the problem is the unavoidable seasonality of so many farm tasks and the difficulty of providing workers with year round work. Migrancy is in effect, one logical response to this problem; but it is then attended by the evils of poor housing and sanitation in the labor camps and the costs of special education and other programs for the children and families involved. Some labor tasks have become more demanding of formal technical skills as machinery has become much more complex and expensive and as chemical aspects of farming have become more widespread. Farm wages have advanced rather steadily and have kept pace with inflation, but some of this growth merely reflects the declining extent to which employers furnish housing or other perquisites in lieu of wages. Farm wages are still barely half the level of industrial wages.

Although there is a core of workers who persist in the work for years, surveys have shown a high degree of transiency and impermanence in the work. From the farmer's point of view this is undesirable, even though it tends to keep wage costs low. It seems to be a rare farmer who does not complain about the scarcity of good farm labor. Nevertheless, given the high poverty rates among households containing farm workers, it may be just as well for the departing workers that they seek jobs elsewhere.

No other occupation in America is so subject to competition from immigrant workers, both seasonal and year round, legal and illegal, government sponsored or unsponsored. It would appear almost certain that this inflow reduces the wage levels that otherwise would prevail. Yet it seems equally certain that large segments of perishable crop agriculture would not have enough capable and willing domestic workers for the arduous or dirty jobs of the industry, unless much higher wages were paid. The use of foreign workers--mostly Mexican--will undoubtedly continue.

The voices of farm labor employers are clearly heard in the federal government, both in the executive branch and in Congress. This has been most recently demonstrated in the lengthy deliberations over protection of the foreign farm labor supply in drafting the new immigration act (Simpson-Mazzoli bill).[1] The workers themselves have also organized somewhat in the last decade, but largely just in irrigated areas and not in the grain and livestock region with its more year round domestic-origin workers. Still, political power among the group for economic and social gain remains weak, often overshadowed by employers and other interests competing for federal and state assistance.

There may be no full "solution" available to the farm labor aspect of rural poverty. Conditions have improved through better educational levels, the forces of the market place, elimination of some of the worst tasks by labor-saving innovations, and governmental and societal intervention on behalf of the workers. Farm workers have more societal protections now than in the past. But because of inadequate earned income from employment, improvement in the economic well-being of the group as a whole requires continued governmental assistance and protection.

APPALACHIA

The poverty of the southern Appalachians has been a vexing issue since the region began to be described and brought to public consciousness by writers about a century ago. In the late 1800s, as commercial timber and coal operations began, outside capital was introduced into parts of the region, the economic base was broadened, and jobs and population growth were created. But over time, patterns of absentee land and mineral ownership, environmental abuse, worker exploitation, and export of profits became increasingly obvious and bitterly criticized. Abysmal poverty, by national standards, has remained all too common in the region to the present day.

However, although poverty rates in the region continue to average over 20 percent, progress during the last two decades has been made. Federal support (channeled primarily through the Appalachian Regional Commission for infrastructural development and economic and social programs), the increase in social welfare programs in general, and the growth in mining employment during the 1970s resulted in a 30 to 40 percent reduction in poverty from 1970 to 1980.

Much of the improvement reflects growth in earned income, before welfare assistance. Educational levels have risen, and in the nonmining counties there has been growth in manufacturing, professional services, and other nonextractive industry jobs. On the other hand, some of the poverty reduction has been accomplished only through welfare income supplements and other transfers. Most of the Appalachian counties with natural-resource-dominated economies are in the top national county quintile of per capita public assistance payments. And, despite growth in manufacturing employment, transfer payment income is often the leading single source of personal income outside the major mining counties.

Given the combination of conditions in the southern Appalachians (difficult topography, intensely rural and very small town character, the absence of high-wage businesses, high rates of work-limiting health disabilities, and limited educational levels among the older half of the labor force), it will be difficult to achieve an economy that lowers poverty levels to those of the rest of the country. Many issues of equity, taxation, safety, health, environment, and wages continue to surround the coal industry, all of which have consequences for the level of poverty. But equally important to the future of the region is the question of whether mining employment will grow, or even manage to regain its 1979-1981 levels. Perhaps metallurgical, export, and utility coal markets will revive, but barring further energy crises, they may not in the near future. The instability in the coal mining industry is particularly troublesome because of the lack of other employment opportunities in the mining counties. These areas have not been able to attract other industrial jobs in recent years.

The same problem of declining employment faces the small-scale tobacco and livestock farming pursuits that characterize the high-poverty counties of the outer parts of the region. Supplementing the economy with low-wage female textile jobs has made a contribution, but only additional forms of better paid work for both men and women have the prospect of reducing work-related poverty any further.

RURAL BLACKS

As with most other segments of rural poverty, it is possible to have either an optimistic or pessimistic view of the condition of the rural Black population. This population is remarkably better off today than it was twenty or thirty years ago in housing, education, political enfranchisement, access to public facilities and programs, entry to manufacturing and other employment, and relief from the semi-thralldom of sharecropping. But American standards of well-being have also changed, and if one wants to quote shocking statistics on current poverty, there is no need to look beyond those pertaining to rural and small town Blacks.

Thirty-nine percent of nonmetropolitan Black residents lived with poverty level incomes in 1979, even after counting cash income received from public assistance. There are many conditions of the Black population that militate against widespread achievement of adequate earned incomes. These include the continued low level of education compared with general standards (especially among people over forty), the unusually low rates of work duration and male labor force participation (reflecting a high incidence of discouraged workers), concentration of much of the work force in low-wage industries, the lower degree of economic diversity in the Coastal Plain and Delta counties where Black rural poverty is the worst, the high and growing proportion of children and women in female-headed families, and large family size.

These conditions disproportionately affect rural Blacks generally, but they are most serious in areas such as the Mississippi Delta and the Black Belt where the former plantation agriculture system was most dominant, and where Blacks form the highest percentage of the total population.

Subjectively, Blacks do not appear to evaluate these areas as bleakly as they did in the 1950s and 1960s, when the majority of each young adult cohort quickly moved away after leaving school. Although there was some population outmigration in the 1970s, it was much reduced, and for the first time in recent history, a number of rural counties had an increase in the Black percentage of their population. The disparities between Whites and Blacks in these areas continue to be major, however.

But how does one address the conditions cited above? To some extent, it is difficult to know which are causes and which effects of long-term poverty, or indeed, whether they might not be a mixture of both. To work depends upon work being available or creatable. While economic development programs have broadened the employment base for Blacks in many rural areas, the growth of nonfarm employment opportunities during the last decades has been limited in rural areas where the most persistent and intractable problems of poverty are located. Many of these are areas of the Deep South with a high concentration of rural Blacks. To broaden the economic base in these areas, public and private sector efforts to increase the availability of capital and technical expertise are essential for the creation of private sector employment opportunities in these communities.

In natural-resource-related work, the decline in the number of Black farmers continues. Few of them any longer grow cotton, the crop so intimately connected with the history of Blacks in rural America. Tobacco is the crop that has been the most common route to commercial-scale farming for Blacks in the last quarter century. The small acreage requirements and continued usefulness of family labor in tobacco has made this possible. But tobacco farming now clearly seems in retreat, with acreage declining, a stagnant market, rapidly increasing competition from abroad, and the number of farms declining. It is very difficult to adjust operations to some other successful mode on small farms. In the nontobacco parts of the South, particularly from Alabama west, the great bulk of Black farmers are very small-scale operators of high average age.

Nothing short of a major stimulus to attract younger people into the industry can halt the continued rapid decline in number of Black farmers. There is a strong sentimental aversion to witnessing the near end of Blacks as farm operators. Given the precarious current position of so many established farmers, efforts to assist Blacks to remain in or enter farming almost have to be predicated on a combination of small scale-farms with off-farm work.

Cessation of farming by Blacks, as generations change continually poses the threat of loss of Black land ownership as estates are settled. There may be practical limits to what can be done to retain such land in Black-operated farms, but there is a great need for professional assistance to Black landowners in transferring or selling land and facilitating either its retention in the family or the opportunity for other Blacks to purchase it.

NATIVE AMERICANS

Poverty rates among Native Americans continue to be among the highest of the population groups discussed in this report. In 1979, 34 percent of all nonmetropolitan Indians and 40 percent of all reservation Indians lived in poverty. Reductions in poverty during the 1970s among the largest reservation tribes--the Navajo and the Sioux--were much lower than those found among other minority populations. The continued high poverty rates can be partly explained by the absence of employment opportunities, high unemployment and low labor force participation rates, as well as low educational attainment and low skill levels among the group as a whole.

Although the reduction of poverty rates among Native Americans undoubtedly requires multifaceted approaches and many forms of assistance, one potential avenue for new job opportunities, improved tribal revenues, and increased economic activity is the development of reservation-based natural resources. Indians are unique among the poverty groups discussed in this report in that they own a substantial amount of natural resources. Even so, while the potential for economic gain is substantial, there are a number of issues and obstacles that must be overcome before expanding natural-resource-development efforts on Indian lands.

First, water is the key to future natural-resource development on many reservations. As competing demands among municipal, industrial, and agricultural uses for water in the West have escalated in recent years, western tribes have begun to assert their historic water rights well beyond those they currently control in order to protect current supplies and ensure future water availability. Indian water claims threaten present water use patterns and practices, and major legal disputes over entitlement to water are now common throughout the West involving numerous water basins and Indian communities. Although a short-term solution to the problem is unlikely, progress towards its resolution is critical. In addition to disputes over water rights, resolution is needed in the matters of regulatory authority over reservation water use, water quality issues, and off-reservation water uses.

Second, tax revenues are a major benefit accruing to regions where extractive industries are located, and tribal authority to impose severance taxes on mineral, oil, and gas development on reservations is of critical importance to increasing tribal revenues. In 1982, the Supreme Court, in a case contesting the rights of the Jicarilla Apache tribe and other tribes to levy a severance tax on oil and gas, ruled in favor of the tribe, thus confirming the legal authority of tribal governments to levy such taxes. Although it has often been difficult for tribes to obtain the technical and legal expertise necessary for instituting such taxes, many tribes now have either in place, or in a proposal form, taxes of some sort. This issue, though, is by no means fully settled. For example, can the states and tribal governments tax the same mineral production? The issue is still under litigation.

Third, because the transformation of natural resources into productive assets requires large amounts of capital and technical expertise, tribal governments must enter into contracts with outside developers to extract the minerals. In the past such agreements often have not included guarantees for the use of Indian labor or reservation-based investments, and only limited benefits have accrued to the Indians. The ability of Indian tribes to enter into more equitable contracts, guarantees for employment opportunities for their members, increased tribal revenues, and the development of tribal management and business capabilities are necessary if increased benefits are to be realized in the future.

Fourth, it is critical that Indians themselves are provided an opportunity to be full participants in decision making concerning the future development of tribal natural resources. For future development efforts to be successful, decisions about resource development on Indian lands must incorporate the cultural imperatives so vital to Indian communities.

CONCLUSIONS

In summary, it is evident that natural resource and povertv relationships are regionally specific and are associated with particular segments of the nation's population. Therefore, programs and policies to address resource-related poverty must be tailored to individual settings. It is also true that whereas few persistently poor people own natural resources, many do live in rural communities where such resources play an important economic role.

In agriculture, with its large number of farmers, the bulk of the land resource is in local hands. Yet the complexity of successfully balancing output with demand at rewarding prices with minimal public subsidy has defied public policy efforts thus far. For the operators, the issue is how to avoid income poverty among asset-rich people. For their hired workers, the challenge is to provide wage levels and amounts of work that are sufficient to yield an adequate living standard.

In almost any significant mineral or timber project, the local community may have relatively little control over decisions concerning development. Capital requirements are large and absentee corporate control is the norm. The local population, though, must bear the consequences of development--consequences like environmental impacts, rapid population growth and consequent demand for public services, and cyclical employment instability associated with resource industries. How rural communities cope with these impacts and capture more of the benefits of natural-resource development are crucial questions if we are to improve their well-being and that of their low-income residents.

In conclusion, it is essential to stress that to improve incomes through natural resources requires not only development of the resources themselves but successfully combining all of the other factors that make a resource economic, namely, capital, labor, technology, management, and markets.

NOTES

1. As of this writing, the bill was under discussion in Congress.

Appendix

The Workshop and the Papers

In the summer of 1983, with a grant from the Ford Foundation, Resources for the Future convened a workshop on "Rural Development, Poverty, and Natural Resources." Over forty leading researchers and community development leaders participated in the two-and-a-half day workshop. Workshop discussions were organized around ten commissioned papers, commentators' remarks, and a luncheon address. The papers covered broad issues of rural development, resource ownership and use, and the incidence of poverty and its relationship to natural resources including six case studies focusing on specific resources in various geographic settings.

PART I

Sociodemographic and Economic Changes in Rural America, by Kenneth L. Deavers and David L. Brown, Economic Research Service, U.S. Department of Agriculture; with comments by Ronald C. Powers, North Central Regional Center for Rural Development, Iowa State University.

Rural Policy: An Independent View, by Edward J. Blakely, Institute of Government Studies, University of California, Berkeley.

PART II

Income Distribution, Poverty, Natural Resources, and Public Policies: Conceptual and Research Issues, by Emery N. Castle and Mark Goldstein, Resources for the Future, Inc.; with comments by Philip M Raup, Department of Agricultural and Applied Economics, University of Minnesota.

PART III

Real Income, Poverty, and Resources, by Irving Hoch, Julie Hewitt, and Vicky Virgin, Resources for the Future, Inc.; with comments by Edna Loehman, Department of Agricultural Economics, Purdue University.

PART IV

Ownership Patterns of Natural Resources in Rural America: Implications for Distribution of Wealth and Income, by Marion Clawson, Resources for the Future, Inc.; with comments by Robert G. Healy, Conservation Foundation.

PART V

The City House and the Country House: Land-Use Policies and Rural Poverty in the Northeast, by Frank J. Popper, Resources for the Future, Inc.

Coal, Poverty, and Development Policy in Eastern Kentucky, by Cynthia L. Duncan and William A. Duncan, Mountain Association for Community Economic Development.

Development and Management of Forest Resources for Rural Development in the Pacific Northwest, by Joe B. Stevens, Department of Agricultural and Resource Economics, Oregon State University.

Natural and Human Resources: Major Public Policy and Minority Rural Land Ownership, Management, and Use, by T.T. Williams, Richard Morse, and Avery Webber, Tuskegee Institute; with comments by Paul Barkley, Department of Agricultural Economics, Washington State University; Brady J. Deaton, Department of Agricultural Economics, Virginia Polytechnic Institute and State University; and Marty Strange, Center for Rural Affairs.

PART VI

Water and Poverty in the Southwest, by Helen Ingram, University of Arizona; F. Lee Brown, University of New Mexico; Gary Weatherford, Santa Clara University; Gil Bonem, the Center for Natural Resource Studies; Steve Mumme, Colorado State University; and Wade Martin, University of New Mexico.

Indian Natural Resource Development: The Impact on Poverty: Overview of Issues, and Proposals for Research by Susan Williams, Fried, Frank, Harris, Shriver and Kampelman; with comments by John Folk-Williams, Western Network, and Allen V. Kneese, Resources for the Future, Inc.

The papers are available from: the National Center for Food and Agricultural Policy, Resources for the Future, Inc., 1616 P Street, N.W., Washington, D.C. 20036.

About the Authors

At the time this paper was prepared, Irma T. Elo was consultant-in-residence with the National Center for Food and Agricultural Policy, Resources for the Future. Calvin L. Beale is Head, Population Section, Economic Research Service, U.S. Department of Agriculture. Mr. Beale's participation was not part of his official duties at the department.